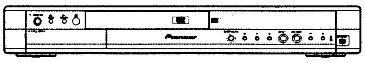
Pioneer sound.vision.soul

PION-06169

Service Manual



DVR-320-S

ORDER NO.
RRV2964

DVD RECORDER

DVR-320-S

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Region No.	**Serial No.** Please confirm 3rd & 4th alphabetical letters.
DVR-320-S	WYXK	AC220-240V	2	&&UK######$$
DVR-320-S	WYXU	AC220-240V	2	&&PG######$$
DVR-320-S	WVXK	AC220-240V	2	&&UK######$$

- **When servicing this model, some service procedures may reset the settings that customer set (*) to the factory default settings. Make sure to explain this to the customer.**

(*) : Initial Setup (Clock Setting, Remote Control Set, Channel settings, Video Out settings, Audio In settings, Audio Out settings, Language settings)

Refer to the chapter 12 of the Operating Instructions for more details.

For details, refer to "Important symbols for good services" .

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T-ZZV MAY 2004

SAFETY INFORMATION

LITHIUM BATTERY NOTICE

CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

When replacing the lithium batteries, follow the note below. Dispose of the used battery promptly. Keep away from children. Do not disassemble and do not dispose of in fire.

The battery used in this device may present a fire or chemical hazard if mistreated. Do not recharge, disassemble, heat above 100°C or incinerate. Replace only with the same Part Number. Use of another battery may present a risk of fire or explosion.

Note : The lithium battery installation position is shown in the exploded views.

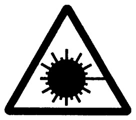
■ LABEL CHECK

IMPORTANT

THIS PIONEER APPARATUS CONTAINS LASER OF CLASS 1.
SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

WARNING!

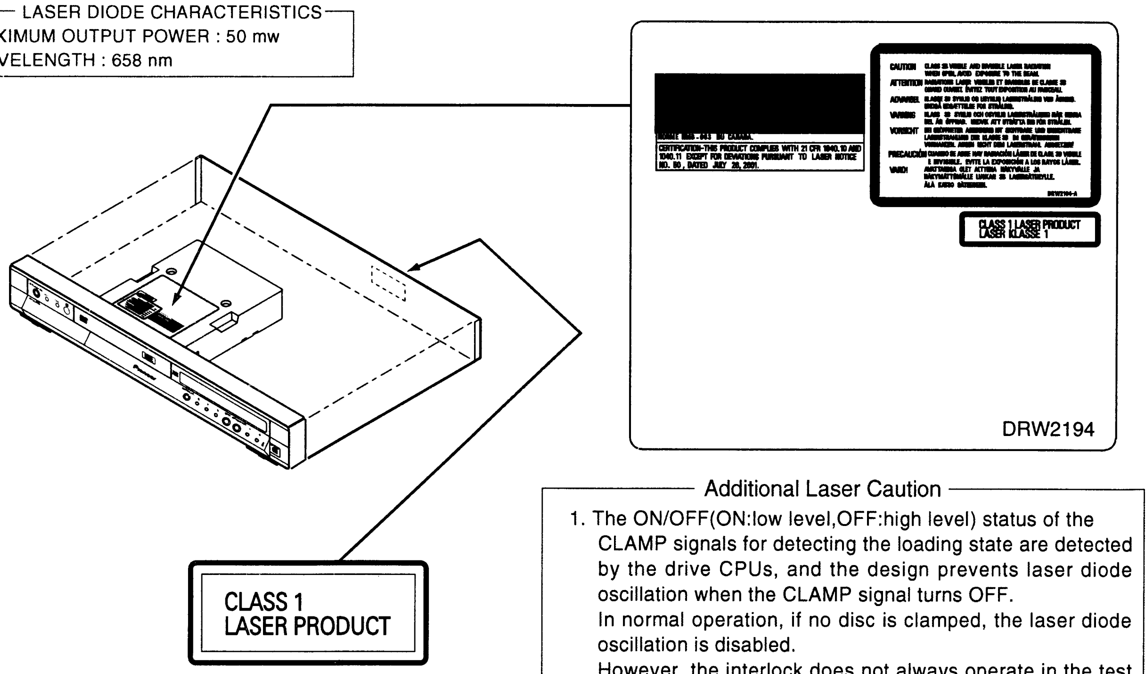
DEVICE INCLUDES LASER DIODE WHICH EMITS INVISIBLE INFRARED RADIATION WHICH IS DANGEROUS TO EYES. THERE IS A WARNING SIGN ACCORDING TO PICTURE 1 INSIDE THE DEVICE CLOSE TO THE LASER DIODE.



LASER
Picture 1
Warning sign for laser radiation

LASER DIODE CHARACTERISTICS

MAXIMUM OUTPUT POWER : 50 mw
WAVELENGTH : 658 nm


CERTIFICATION-THIS PRODUCT COMPLIES WITH 21 CFR 1040.10 AND 1040.11 EXCEPT FOR DEVIATIONS PURSUANT TO LASER NOTICE NO. 50, DATED JULY 26, 2001.
CAUTION
ATTENTION
ADVARSEL
VARNING
VORSICHT
PRECAUCIÓN
VARO
CLASS 1 LASER PRODUCT
LASER KLASSE 1
DRW2194
CLASS 1
LASER PRODUCT

Additional Laser Caution

1. The ON/OFF(ON:low level,OFF:high level) status of the CLAMP signals for detecting the loading state are detected by the drive CPUs, and the design prevents laser diode oscillation when the CLAMP signal turns OFF.
   In normal operation, if no disc is clamped, the laser diode oscillation is disabled.
   However, the interlock does not always operate in the test mode.

2. When the cover is opened, close viewing of the objective lens with the naked eye will cause exposure to a Class 3A laser beam.

[Important symbols for good services]

In this manual, the symbols shown-below indicate that adjustments, settings or cleaning should be made securely.
When you find the procedures bearing any of the symbols, be sure to fulfill them:

1. Product safety

You should conform to the regulations governing the product (safety, radio and noise, and other regulations), and should keep the safety during servicing by following the safety instructions described in this manual.

2. Adjustments

To keep the original performances of the product, optimum adjustments or specification confirmation is indispensable. In accordance with the procedures or instructions described in this manual, adjustments should be performed.

3. Cleaning

For optical pickups, tape-deck heads, lenses and mirrors used in projection monitors, and other parts requiring cleaning, proper cleaning should be performed to restore their performances.

4. Shipping mode and shipping screws

To protect the product from damages or failures that may be caused during transit, the shipping mode should be set or the shipping screws should be installed before shipping out in accordance with this manual, if necessary.

5. Lubricants, glues, and replacement parts

Appropriately applying grease or glue can maintain the product performances. But improper lubrication or applying glue may lead to failures or troubles in the product. By following the instructions in this manual, be sure to apply the prescribed grease or glue to proper portions by the appropriate amount.For replacement parts or tools, the prescribed ones should be used.

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1. SPECIFICATIONS

General

System ....DVD-Video,DVD-R/RW,
Video-CD, Super VCD, CD,
CD-R/RW (WMA, MP3, JPEG. CD-DA)
Power requirements.............. 220–240 V, 50/60 Hz
Power Consumption
DVR-320...................................35 W
Power consumption in standby mode............0.68 W
(Front panel display: off)
Weight ....4.0 kg
Dimensions ....420 (W) x 59 (H) x 339 (D) mm
Operating temperature ....+5°C to +35°C
Operating humidity 5%to 85%
(no condensation)
TV system .... PAL/SECAM/
NTSC (external input only)

Recording

Recording format ....DVD Video Recording
DVD-VIDEO

Recordable discs

DVD-RW (DVD Re-recordable disc)
DVD-R (DVD Recordable disc)

Video recording format

Sampling frequency........................13.5MHz
Compression format.......................... MPEG

Audio recording format

Sampling frequency..........................48kHz
Compression format......... Dolby Digital or Linear PCM
(uncompressed)

Recording time

Fine (FINE).......................... Approx. 1 hour
Standard Play (SP)................... Approx. 2 hours
Long Play (LP)....................... Approx. 4 hours
Extended Play (EP).................. Approx. 6 hours
Manual Mode (MN)................. Approx. 1–6 hours

Tuner

Receivable channels

	PAL B/G		PAL I	
	Frequency	Channel	Frequency	Channel
VHF (low)	47 - 89 MHz	E2 - E4 X - Z	44 - 89 MHz	A - C X - Z
VHF (high)	104 - 300 MHz	E5 - E12 S1 - S20 M1 - M10 U1 - U10	104 - 300 MHz	D - J 11, 13 S1 - S20
Hyper	302 - 470 MHz	S21 - S41	302 - 470 MHz	S21 - S41
UHF	470 - 862 MHz	E21 - E69	470 - 862 MHz	E21 - E69

	SECAM L		SECAM D/K	
	Frequency	Channel	Frequency	Channel
VHF (low)	49 - 65 MHz	2 - 4	49 - 94 MHz	R1 - R5
VHF (high)	104 - 300 MHz	5 - 10 B - Q	104 - 300 MHz	R6 - R12 S1 - S20
Hyper	300 - 470 MHz	S21 - S41	302 - 470 MHz	S21 - S41
UHF	470 - 862 MHz	21 - 69	470 - 862 MHz	E21 - E69

STEREO
B/G - A2
I - NICAM
L - NICAM
B/G - NICAM
D/K - NICAM

Timer

Programs ....1 month/32 programs
Clock ....Quartz lock (24-hour digital display)
Power off memory.... Approx. 5 years (after manufacture)

Input/Output

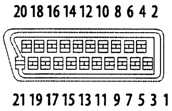
VHF/UHF antenna input/output terminal .... VHF/UHF set
75 Ω (IEC connector)
Video input.................... Input 1 (rear), 2 (front)
Input level ....1 Vp-p (75Ω)
Jacks .... AV connector 2 (Input 1),
RCA jack (Input 2)
Video output........................... AV1 Output
Output level ....1 Vp-p (75Ω)
Jacks .... AV connector 1 (AV1)
RCA jack (Output)
S-Video input .... Input 1 (rear), 2 (front)
Y (luminance) - Input level .... 1 Vp-p (75Ω)
C (colour) - Input level............... 286 mVp-p (75Ω)
Jacks ....AV connector 2 (Input 1),
4 pin mini DIN (Input 2)
S-Video output.........................AV1 / Output
Y (luminance) - Output level.............. 1 Vp-p (75Ω)
C (colour) - Output level............. 286 mVp-p (75Ω)
Jacks .... AV connector 1 (AV1),
4 pin mini DIN (Output)
RGB input
Input level ....0.7 Vp-p (75Ω)
Jacks .... AV connector 2 (Input 1)
RGB output
Output level .... 0.7 Vp-p (75Ω)
Jacks .... AV connector 1

Audio input	Input 1 (rear), 2 (front) L/R
Input level	
During audio input	2V rms (Input impedance: more than 22 kΩ)
Jacks	AV connector 2 (Input 1), RCA jacks (Input 2)
Audio output	AV1 Output
During audio output	2V rms (Output impedance: less than 1.5 kΩ)
Jacks	AV connector 1 (AV1), RCA jacks (Output)
Control input	Mini jack
DV input/output	4pin (i.LINK/IEEE 1394 standard)

AV Connectors (21-pin connector assignment)

AV connector input/output .... 21-pin connector

This connector provides the video and audio signals for connection to a compatible colour TV or monitor.



PIN no.	AV1(RGB)-TV / AV2(INPUT 1)
1	Audio 2/R out / Audio 2/R out
2	– / Audio 2/R in
11	G out / G in
3	Audio 1/L out / Audio 1/L out
6	– / Audio 1/L in
15	R or C out / R or C in
4	GND
17	GND
7	B out / B in
19	Video out or Y out / Video out
20	– / Video in or Y in
8	Status
21	GND

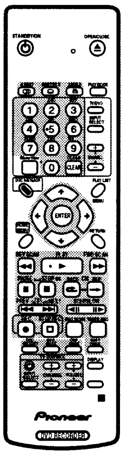
Supplied accessories

Remote control	1
Dry cell batteries (AA/R6P)	2
Audio / Video cable (red/white/yellow)	1
RF antenna cable	1
Power cable	1
Operating Instructions	6
Warranty card	1

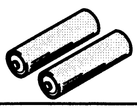
Note: The specifications and design of this product are subject to change without notice, due to improvement.

● Accessories

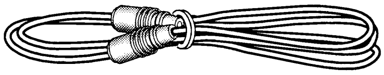
- Remote control ×1
  (VXX2908 : WYXK/WYXU types)
  (VXX2929 : WVXK type)



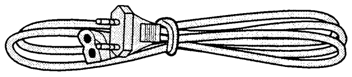
- Dry cell batteries ×2
  (AA/R6P)



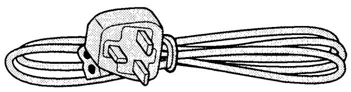
- RF antenna cable(PAL) ×1
  (VDE1075)



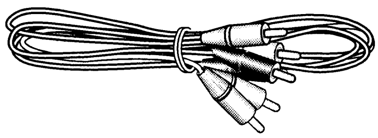
- Power cable ×1
  (ADG1154 : WYXK/WYXU types)



(ADG1156 : WVXK type)



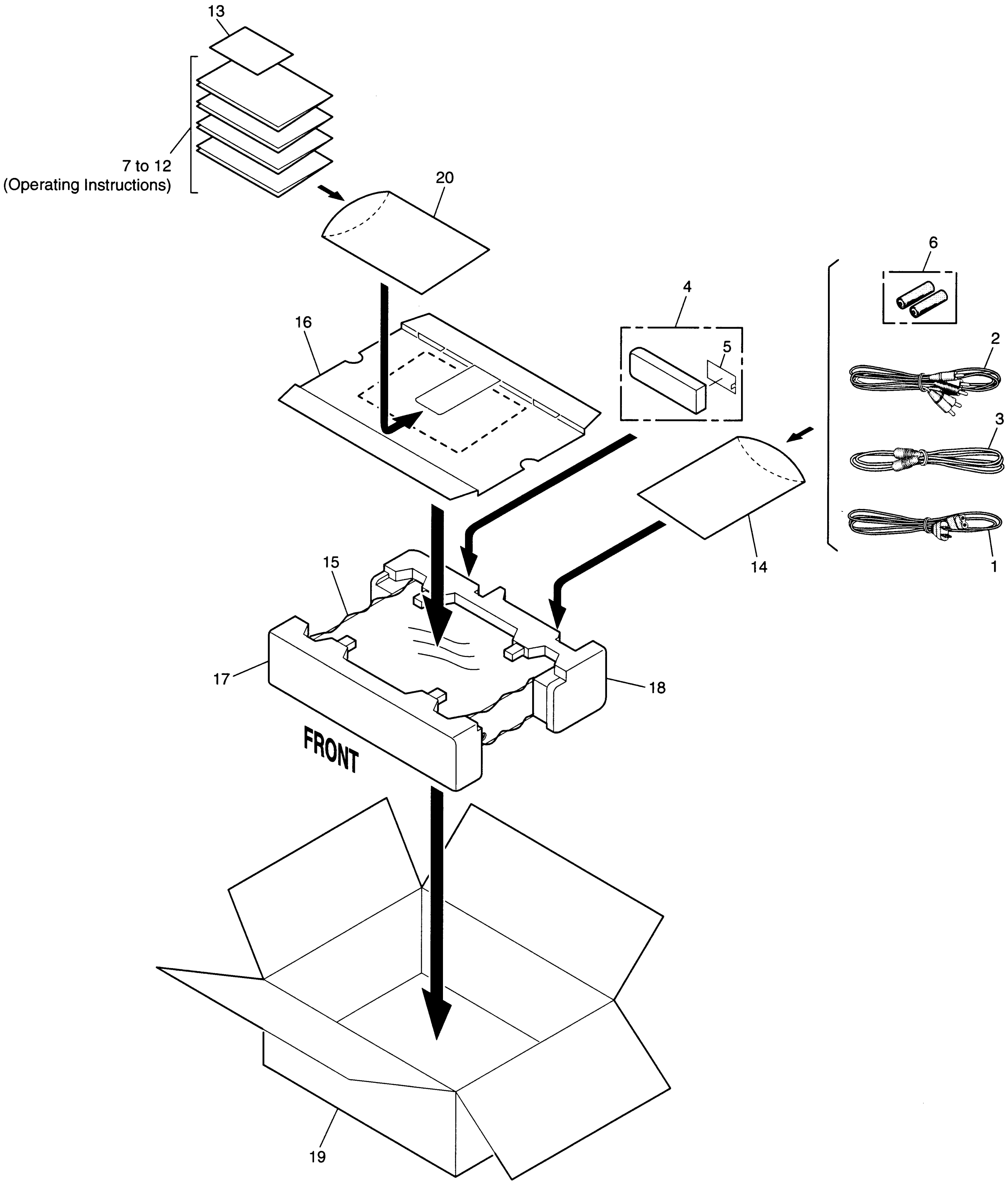
- Audio / Video cable(1.5m) ×1
  (red/white/yellow)
  (XDE3049 : WYXK/WVXK type)
  (VDE1077 : WYXU type)



2. EXPLODED VIEWS AND PARTS LIST

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Screws adjacent to ▼ mark on product are used for disassembly.*
- *For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions, apply as you think it appropriate.)*

2.1 PACKING


13
7 to 12
(Operating Instructions)
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1
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17
18
FRONT
19

PACKING parts List

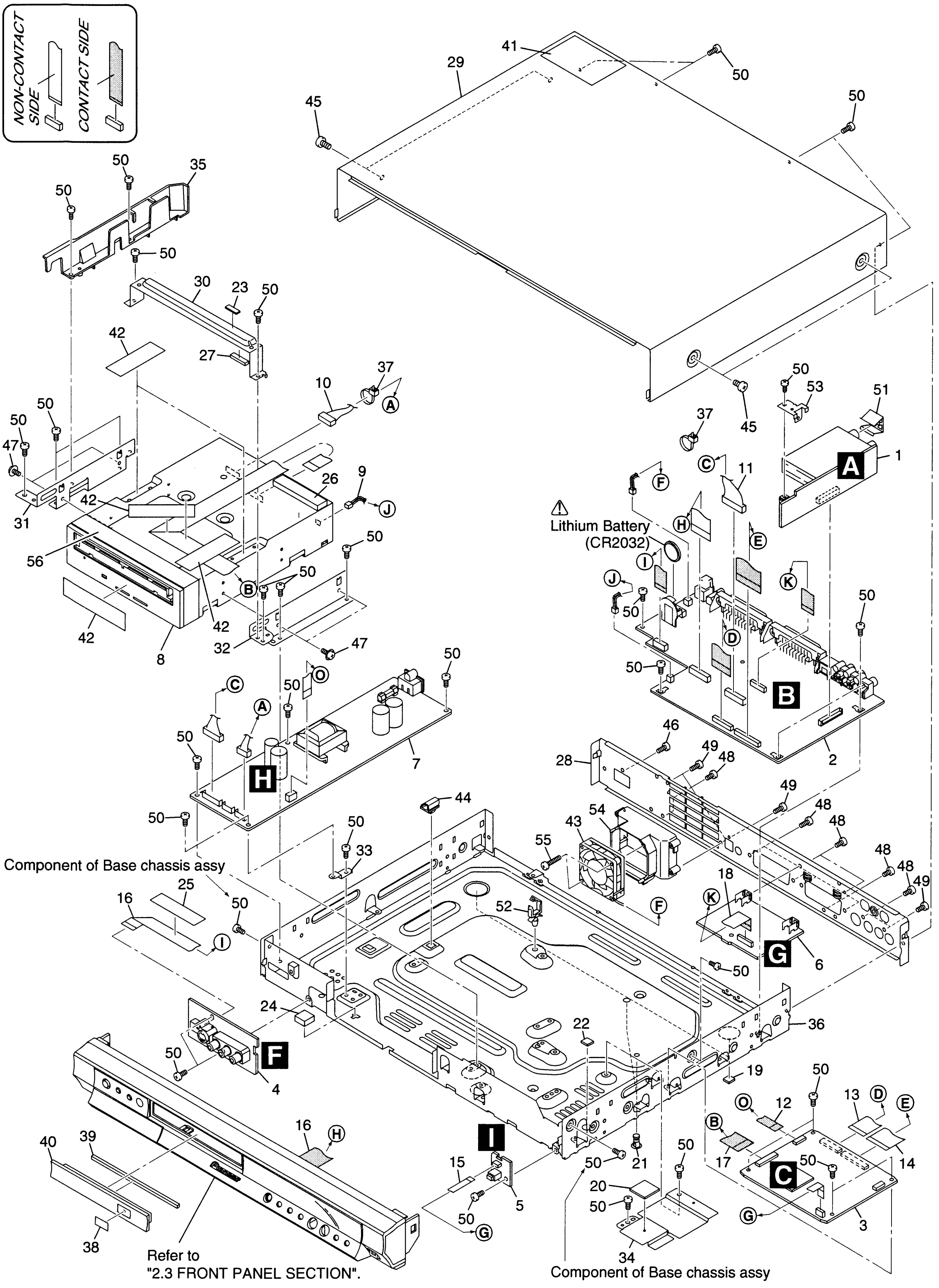
Mark	No.	Description	Part No.
⚠	1	Power Cable	See Contrast table (2)
	2	Audio / Video Cable	See Contrast table (2)
	3	RF Antenna Cable	VDE1075
	4	Remote Control	See Contrast table (2)
	5	Battery Cover	AZN7933
NSP	6	Dry Cell Battery (R6P, AA)	See Contrast table (2)
	7	Operating Instructions (English)	See Contrast table (2)
	8	Operating Instructions (French)	See Contrast table (2)
	9	Operating Instructions (German)	See Contrast table (2)
	10	Operating Instructions (Italian)	See Contrast table (2)
	11	Operating Instructions (Dutch)	See Contrast table (2)
	12	Operating Instructions (Spanish)	See Contrast table (2)
NSP	13	Warranty Card	ARY7065
	14	Polyethylene Bag	VHL1051
	15	Mirror Sheet	VHL1006
	16	IM Holder	See Contrast table (2)
	17	Front Pad	See Contrast table (2)
	18	Rear Pad	See Contrast table (2)
	19	Packing Case	See Contrast table (2)
	20	Polyethylene Bag	See Contrast table (2)

(2) CONTRAST TABLE

DVR-320-S/WYXK, WYXU and WVXK are constructed the same except for the following :

Mark	No.	Symbol and Description	DVR-320-S/ WYXK	DVR-320-S/ WYXU	DVR-320-S/ WVXK
⚠	1	Power Cable	ADG1154	ADG1154	ADG1156
	2	Audio / Video Cable	XDE3049	VDE1077	XDE3049
	4	Remote Control	VXX2908	VXX2908	VXX2929
NSP	6	Dry Cell Battery (R6P, AA)	VEM1017	VEM1030	VEM1017
	7	Operating Instructions (English)	VRB1334	VRB1334	VRB1335
	8	Operating Instructions (Fench)	VRC1200	VRC1200	Not used
	9	Operating Instructions (German)	VRC1201	VRC1201	Not used
	10	Operating Instructions (Italian)	VRC1202	VRC1202	Not used
	11	Operating Instructions (Dutch)	VRC1203	VRC1203	Not used
	12	Operating Instructions (Spanish)	VRC1220	VRC1220	Not used
	16	IM Holder	VHC1117	VHC1115	VHC1117
	17	Front Pad	VHA1370	VHA1364	VHA1370
	18	Rear Pad	VHA1371	VHA1365	VHA1371
	19	Packing Case	VHG2505	VHG2552	VHG2513
	20	Polyethylene Bag	AHG7097	AHG7097	VHL1051

2.2 EXTERIOR


NON-CONTACT SIDE
CONTACT SIDE
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⚠ Lithium Battery (CR2032)

Component of Base chassis assy

Refer to "2.3 FRONT PANEL SECTION".

Component of Base chassis assy

EXTERIOR parts List

Mark	No.	Description	Part No.
	1	TUNB Assy	VWV2003
	2	JCKB Assy	VWV2031
	3	MAIN Assy	VWV2012
	4	FRJB Assy	VWV2004
	5	DVJB Assy	VWV2006
	6	SDEB Assy	VWV2033
⚠	7	POWER SUPPLY Unit	VWR1381
	8	DRIVE Assy R7R (for Service)	VXX2926
	9	Connector Assy (2P)	PF02PP-C07
	10	Connector Assy (4P)	PF04EE-S22
	11	Connector Assy (15P)	PF15PP-D47
	12	Flexible Cable (8P)	VDA1997
	13	Flexible Cable (24P)	VDA1998
	14	Flexible Cable (32P)	VDA1999
	15	Flexible Cable (7P)	VDA2000
	16	Flexible Cable (13P)	VDA2001
	17	Flexible Cable (40P)	VDA2006
	18	Flexible Cable (15P)	VDA2041
	19	Rubber Foot	VEB1349
	20	Radiation Sheet	VEB1360
NSP	21	PC Support	VEC1749
	22	Heatsink Cushion	VEC2363
	23	Gasket Sheet	VEC2394
	24	Spacer	VEC2413
	25	FFC Protector	VEC2436
	26	Gasket 75 x 7T	VEC2439
	27	Gasket Sheet 2	VEC2440
	28	Rear Panel	See Contrast table (2)
	29	Bonnet Case S	See Contrast table (2)

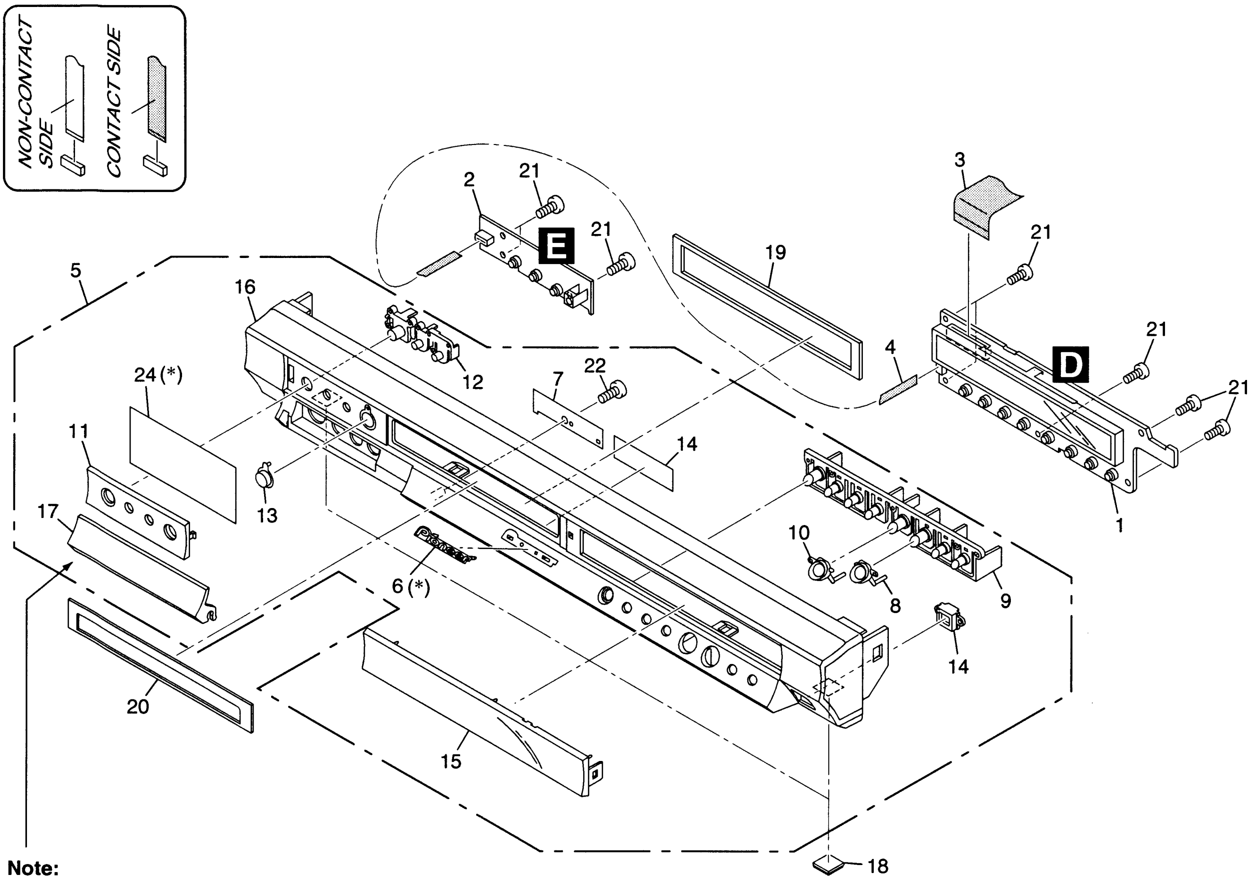
Mark	No.	Description	Part No.
NSP	30	Bonnet Angle	VNE2335
NSP	31	Writer Stay L	VNE2336
NSP	32	Writer Stay R	VNE2337
NSP	33	PCB Base	VNE2339
NSP	34	Heatsink	VNH1070
	35	SYPS Cover	VNK5426
NSP	36	Base Chassis	See Contrast table (2)
NSP	37	Binder (BK-1)	ZCA-BK1
	38	DVD RW Badge	VAM1139
	39	Tray Sheet B	See Contrast table (2)
	40	Tray Panel	See Contrast table (2)
	41	Bonnet Label	See Contrast table (2)
NSP	42	Tape	ZTA-156A-19
	43	DC Fan Motor	VXM1114
NSP	44	P. Plate Holder	PNY-405
	45	Screw	BCZ40P060FNI
	46	Screw	PBZ30P080FTC
	47	Screw	AMZ30P060FTC
	48	Screw	BBZ30P040FTC
	49	Screw	BPZ30P080FTC
	50	Screw	BBZ30P060FTC
	51	Earth Plate TU	VBK1153
NSP	52	Clamp	VEC2418
NSP	53	Tuner Stay	VNE2338
	54	Fan Duct	VNK5427
	55	Screw	BPZ30P250FTC
	56	Seal / Tape	See Contrast table (2)

(2) CONTRAST TABLE

DVR-320-S/WYXK, WYXU and WVXK are constructed the same except for the following :

Mark	No.	Symbol and Description	DVR-320-S/ WYXK	DVR-320-S/ WYXU	DVR-320-S/ WVXK
	28	Rear Panel	VNA2690	VNA2740	VNA2690
	29	Bonnet Case S	VXX2938	VXX2925	VXX2938
NSP	36	Base Chassis	VNB1042	Not used	VNB1042
NSP	36	Base Chassis Assy	Not used	VXA2681	Not used
	39	Tray Sheet B	VEC2450	VEC2409	VEC2450
	40	Tray Panel	VNK5525	VNK5594	VNK5525
	41	Bonnet Label	VRW2139	VRW2139	VRW2140
	56	Seal	Not used	CNM8871	Not used
NSP	56	Tape	ZTA-156A-19	Not used	ZTA-156A-19

2.3 FRONT PANEL


NON-CONTACT SIDE
CONTACT SIDE
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Note:
When replacing the jack door, first fully open it. If the jack door is not fully open during replacement, it may unexpectedly fall out after being replaced.

(*) No.6, No.24 : These parts are included in the Front Panel Assy for WYXU type,
and not included in the Front Panel Assy for WYXK and WVXK types.

FRONT PANEL parts List

Mark	No.	Description	Part No.
	1	FLKY Assy	VWG2489
	2	KIRB Assy	VWG2490
	3	Flexible Cable (19P)	VDA2002
	4	Flexible Cable (7P)	VDA2005
	5	Front Panel Assy	See Contrast table (2)
	6	Pioneer Name Plate	VAM1146
	7	Door Spring	See Contrast table (2)
NSP	8	Copy Ring	See Contrast table (2)
NSP	9	Main Key	See Contrast table (2)
NSP	10	REC Ring	See Contrast table (2)
NSP	11	Sub Panel	See Contrast table (2)
NSP	12	Power Key	See Contrast table (2)
NSP	13	IR Window	See Contrast table (2)

Mark	No.	Description	Part No.
NSP	14	DV Cover	See Contrast table (2)
NSP	15	FL Lens	See Contrast table (2)
NSP	16	Front Panel	See Contrast table (2)
	17	Jack Door	See Contrast table (2)
	18	Rubber Foot	VEB1349
	19	Drive Sheet	VEC2345
	20	Panel Sheet	VEC2446
	21	Screw	BPZ30P080FTC
	22	Screw	See Contrast table (2)
	23	Seal	See Contrast table (2)
NSP	24	Mirror Sheet	VHL1082

(2) CONTRAST TABLE

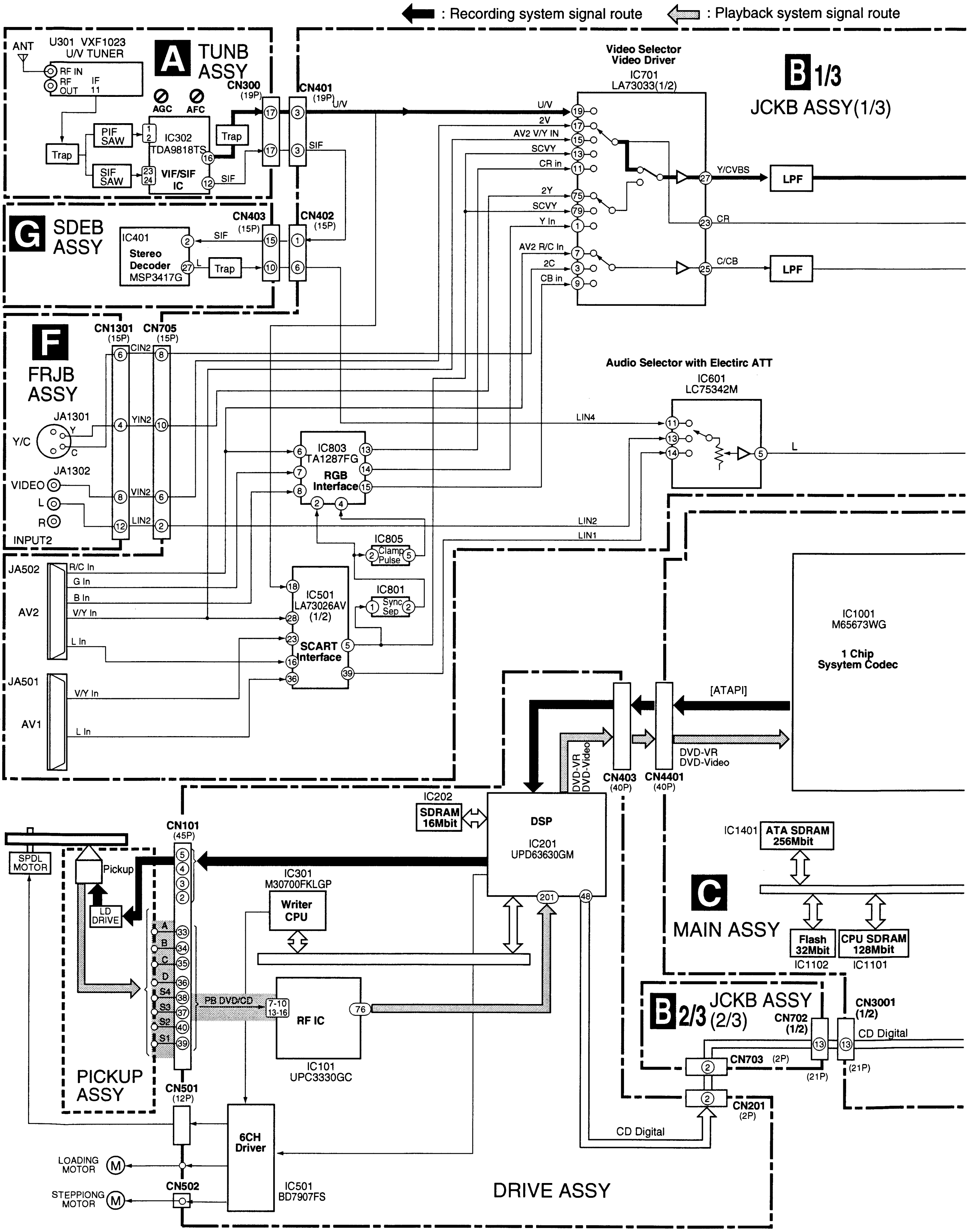
DVR-320-S/WYXK, WYXU and WVXK are constructed the same except for the following :

Mark	No.	Symbol and Description	DVR-320-S/ WYXK	DVR-320-S/ WYXU	DVR-320-S/ WVXK
	5	Front Panel Assy	VXA2659	VXA2641	VXA2660
	7	Door Spring	VBK1152	VBK1151	VBK1152
NSP	8	Copy Ring	VNK5533	Not used	VNK5533
NSP	9	Main Key	VNK5504	VNK5420	VNK5504
NSP	10	REC Ring	VNK5506	VNK5425	VNK5506
NSP	11	Sub Panel	VNK5513	VNK5482	VNK5513
NSP	12	Power Key	VNK5508	VNK5419	VNK5508
NSP	13	IR Window	VNK5511	VNK5423	VNK5511
NSP	14	DV Cover	VNK5518	VNK5451	VNK5518
NSP	15	FL Lens	VNK5516	VNK5485	VNK5516
NSP	16	Front Panel	VNK5500	VNK5490	VNK5500
	17	Jack Door	VNK5503	VNK5496	VNK5502
	22	Screw	BPZ30P080FNI	BPZ30P080FTC	BPZ30P080FNI
	23	Seal	Not used	CNM8871	Not used

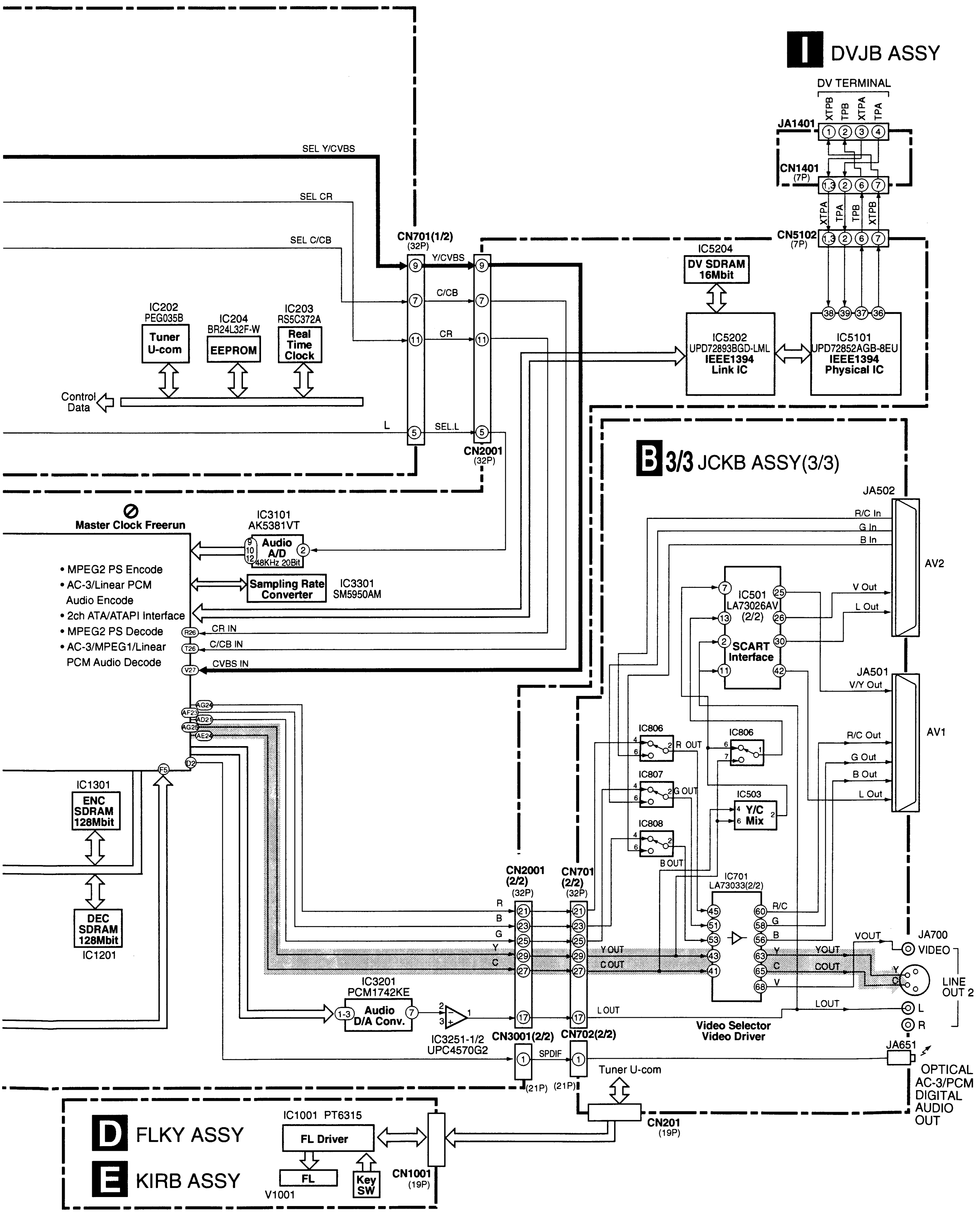
3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

3.1 BLOCK DIAGRAM

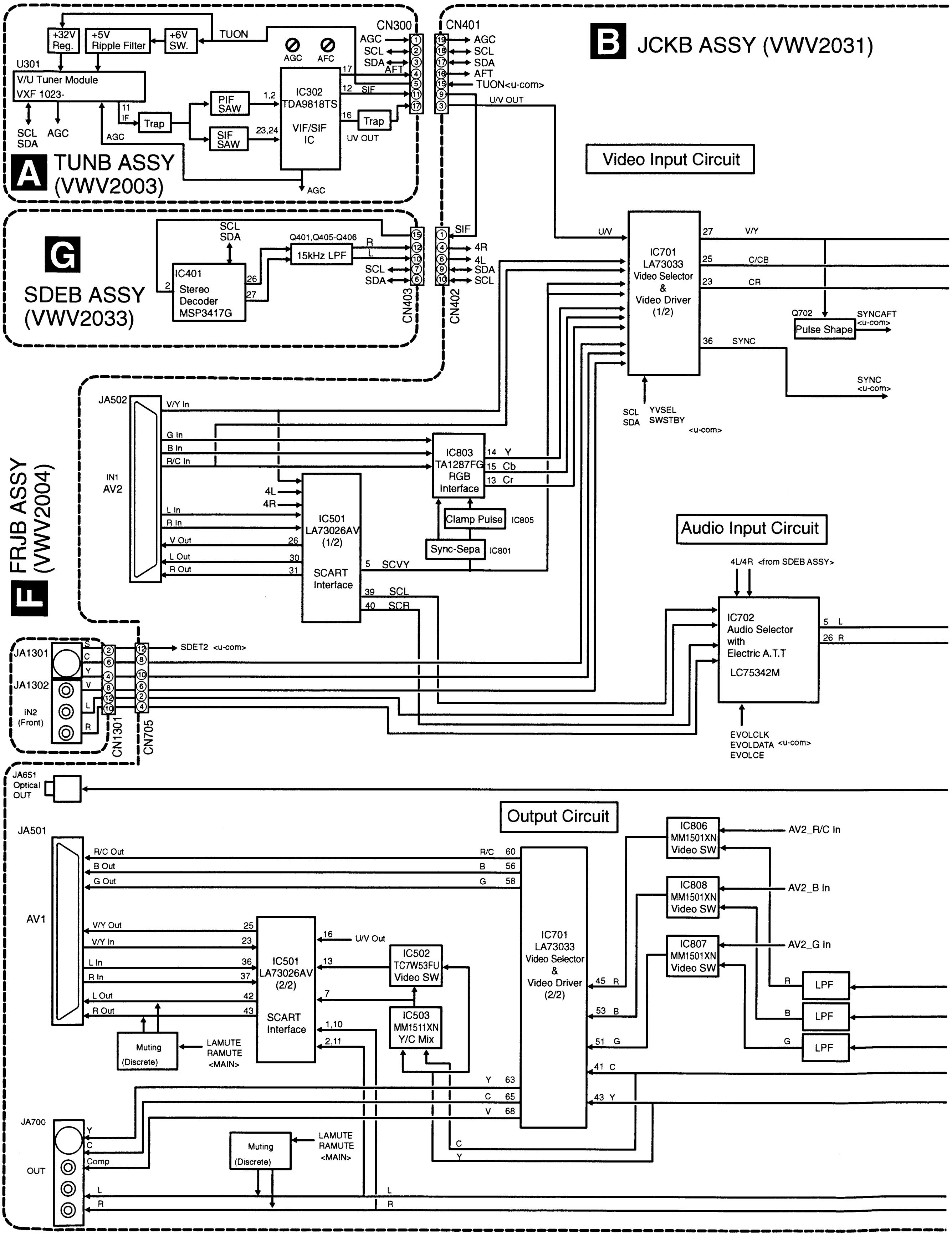
3.1.1 OVERALL BLOCK DIAGRAM

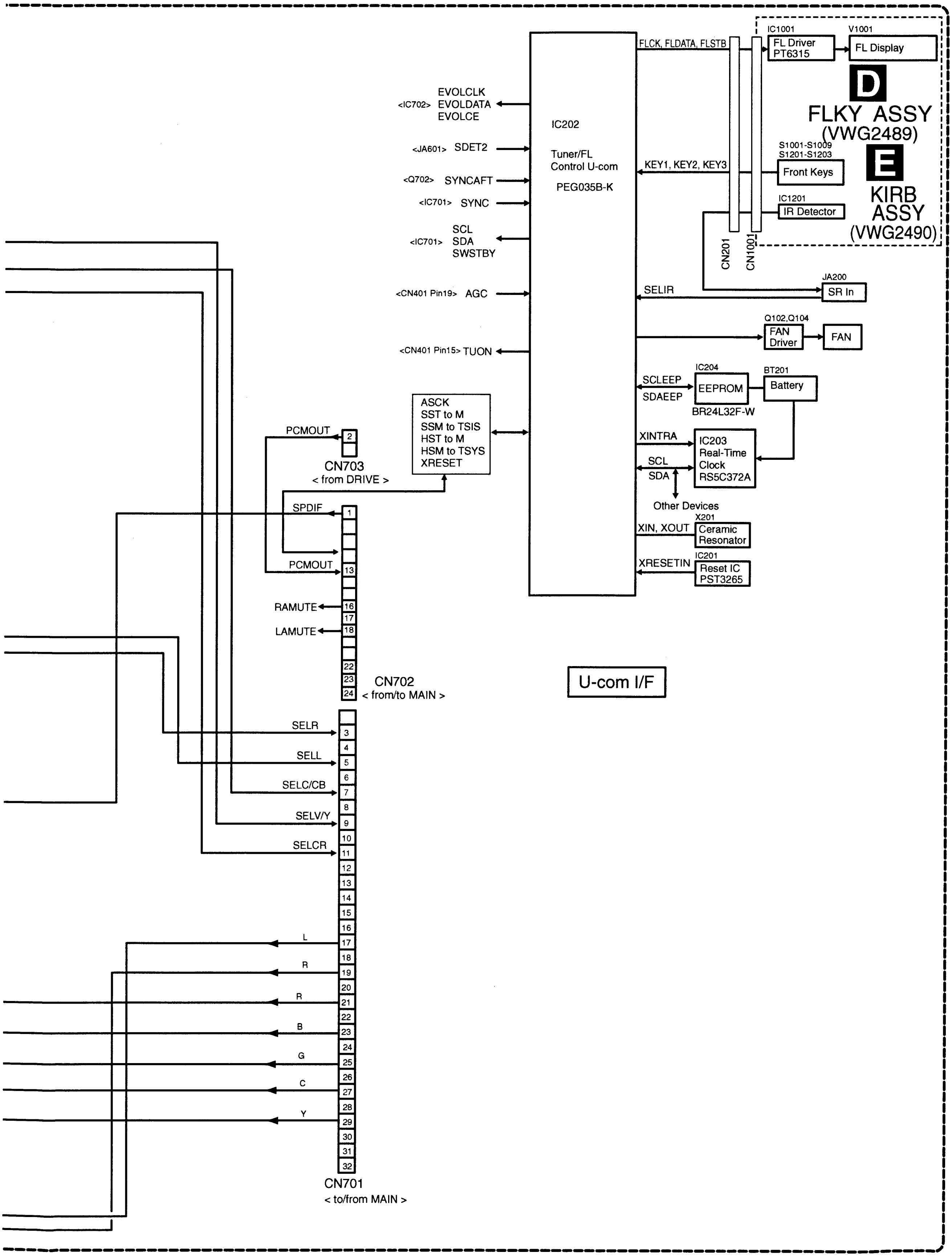

: Recording system signal route
: Playback system signal route
ANT
U301 VXF1023
U/V TUNER
RF IN
RF OUT
IF 11
A TUNB ASSY
AGC
AFC
Trap
PIF SAW
SIF SAW
IC302
TDA9818TS
VIF/SIF IC
SIF
CN300 (19P)
CN401 (19P)
U/V
G SDEB ASSY
IC401
Stereo Decoder
MSP3417G
CN403 (15P)
CN402 (15P)
L
F FRJB ASSY
CN1301 (15P)
CN705 (15P)
CIN2
YIN2
VIN2
LIN2
JA1301
Y/C
JA1302
VIDEO
L
R
INPUT2
JA502
AV2
R/C In
G In
B In
V/Y In
L In
JA501
AV1
V/Y In
L In
Video Selector Video Driver
IC701
LA73033(1/2)
U/V
2V
AV2 V/Y IN
SCVY
CR in
2Y
SCVY
Y In
AV2 R/C In
2C
CB in
Y/CVBS
CR
C/CB
LPF
LPF
B 1/3
JCKB ASSY(1/3)
Audio Selector with Electirc ATT
IC601
LC75342M
LIN4
LIN2
LIN1
L
IC803
TA1287FG
RGB Interface
IC805
Clamp Pulse
IC801
Sync Sep
IC501
LA73026AV (1/2)
SCART Interface
IC1001
M65673WG
1 Chip Sysytem Codec
[ATAPI]
DVD-VR DVD-Video
DVD-VR DVD-Video
CN403 (40P)
CN4401 (40P)
IC202
SDRAM 16Mbit
DSP
IC201
UPD63630GM
IC1401
ATA SDRAM 256Mbit
C MAIN ASSY
Flash 32Mbit
IC1102
CPU SDRAM 128Mbit
IC1101
B 2/3 JCKB ASSY (2/3)
CN702 (1/2)
CN3001 (1/2)
CD Digital
CN703 (2P)
(21P)
(21P)
CN201 (2P)
CD Digital
SPDL MOTOR
Pickup
LD DRIVE
A B C D S4 S3 S2 S1
PICKUP ASSY
CN101 (45P)
IC301
M30700FKLGP
Writer CPU
PB DVD/CD
7-10 13-16
RF IC
IC101
UPC3330GC
CN501 (12P)
6CH Driver
IC501
BD7907FS
LOADING MOTOR
CN502
STEPPIONG MOTOR
DRIVE ASSY

• R ch is same as L ch.

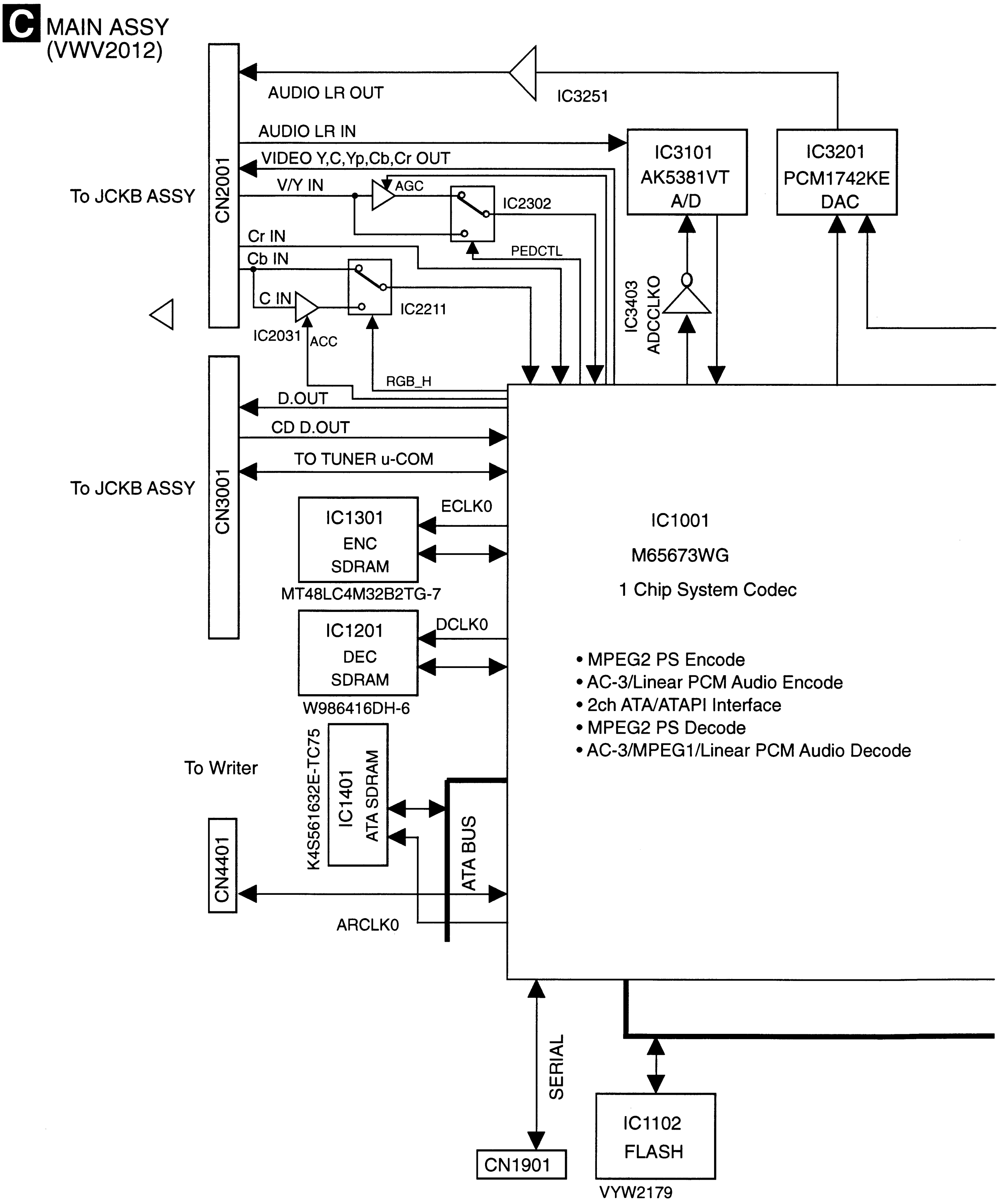

I DVJB ASSY
DV TERMINAL
XTPB
TPB
XTPA
TPA
JA1401
CN1401 (7P)
XTPA
TPA
TPB
XTPB
CN5102 (7P)
IC5204
DV SDRAM 16Mbit
IC5202 UPD72893BGD-LML IEEE1394 Link IC
IC5101 UPD72852AGB-8EU IEEE1394 Physical IC
SEL Y/CVBS
SEL CR
SEL C/CB
CN701(1/2) (32P)
Y/CVBS
C/CB
CR
L
SEL.L
CN2001 (32P)
IC202 PEG035B Tuner U-com
IC204 BR24L32F-W EEPROM
IC203 RS5C372A Real Time Clock
Control Data
Master Clock Freerun
IC3101 AK5381VT Audio A/D 48KHz 20Bit
Sampling Rate Converter
IC3301 SM5950AM
• MPEG2 PS Encode
• AC-3/Linear PCM Audio Encode
• 2ch ATA/ATAPI Interface
• MPEG2 PS Decode
• AC-3/MPEG1/Linear PCM Audio Decode
CR IN
C/CB IN
CVBS IN
R26
T26
V27
AG24
AF23
AD21
AG25
AE24
D2
F5
IC1301 ENC SDRAM 128Mbit
DEC SDRAM 128Mbit IC1201
B 3/3 JCKB ASSY(3/3)
JA502
R/C In
G In
B In
AV2
V Out
L Out
IC501 LA73026AV (2/2)
SCART Interface
JA501
V/Y Out
AV1
R/C Out
G Out
B Out
L Out
IC806
R OUT
IC806
IC807
G OUT
IC503 Y/C Mix
IC808
B OUT
IC701 LA73033(2/2)
R/C
G
B
Y
C
V
CN2001 (2/2) (32P)
CN701 (2/2) (32P)
R
B
G
Y
C
Y OUT
C OUT
VOUT
YOUT
COUT
LOUT
L OUT
JA700
VIDEO
Y
C
LINE OUT 2
L
R
IC3201 PCM1742KE Audio D/A Conv.
IC3251-1/2 UPC4570G2
CN3001(2/2)
CN702(2/2)
SPDIF
(21P)
(21P)
Video Selector Video Driver
JA651
OPTICAL AC-3/PCM DIGITAL AUDIO OUT
Tuner U-com
CN201 (19P)
D FLKY ASSY
E KIRB ASSY
IC1001 PT6315
FL Driver
FL
V1001
Key SW
CN1001 (19P)
A
B
C
D
E
F

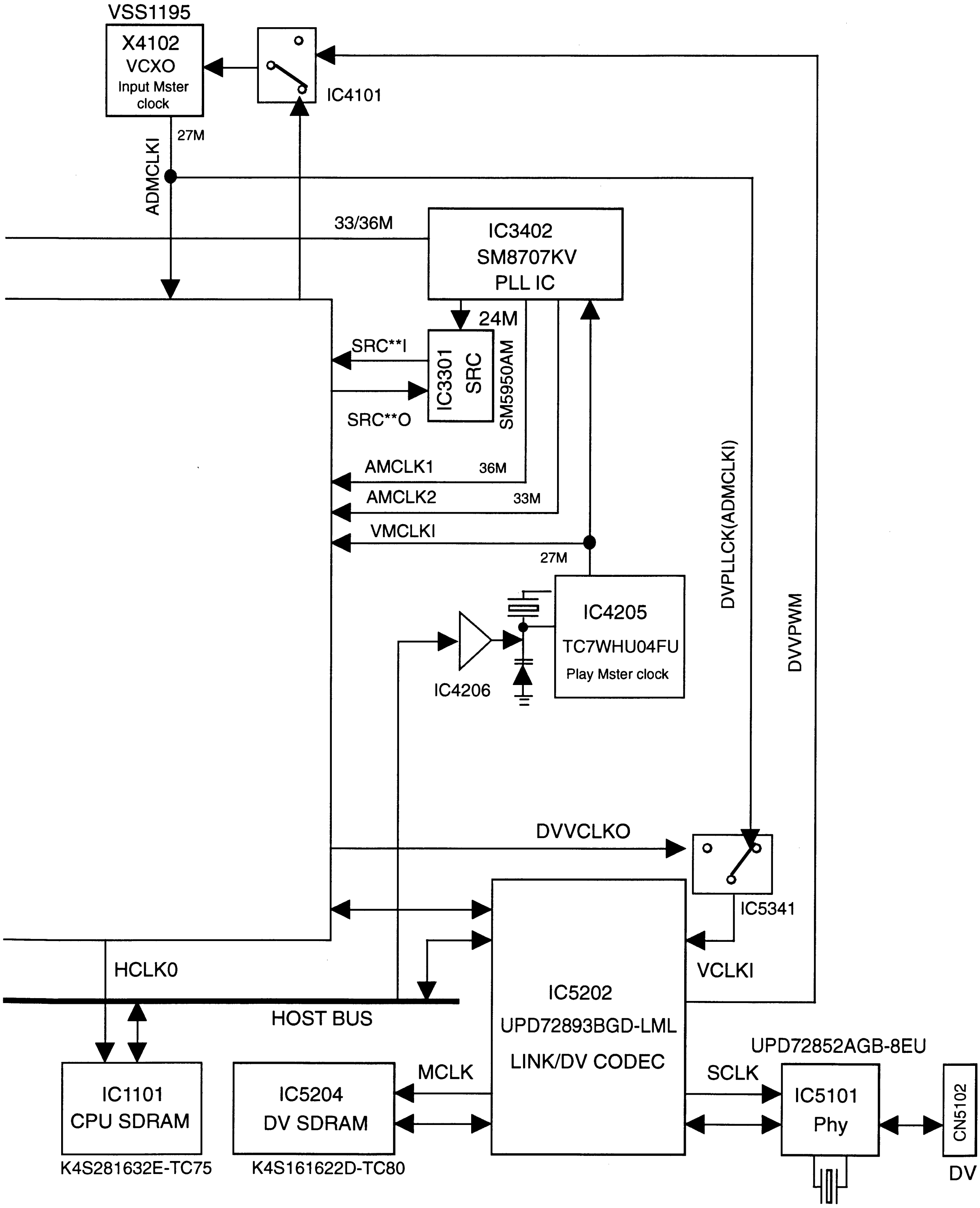
3.1.2 TUNB and JCKB ASSY BLOCK DIAGRAM


A TUNB ASSY (VWV2003)
U301
V/U Tuner Module
VXF 1023-
+32V Reg.
+5V Ripple Filter
+6V SW.
TUON
SCL SDA AGC
IF
Trap
PIF SAW
SIF SAW
IC302
TDA9818TS
VIF/SIF IC
AGC AFC
AFT
SIF
UV OUT
CN300
B JCKB ASSY (VWV2031)
CN401
AGC
SCL
SDA
AFT
TUON<u-com>
U/V OUT
G SDEB ASSY (VWV2033)
IC401
Stereo Decoder
MSP3417G
Q401,Q405-Q406
15kHz LPF
R
L
4R
4L
CN403
CN402
Video Input Circuit
IC701
LA73033
Video Selector & Video Driver (1/2)
U/V
V/Y
C/CB
CR
SYNC
Q702
Pulse Shape
SYNCAFT <u-com>
SYNC <u-com>
SCL SDA
YVSEL SWSTBY <u-com>
F FRJB ASSY (VWV2004)
JA502
IN1 AV2
V/Y In
G In
B In
R/C In
L In
R In
V Out
L Out
R Out
IC803
TA1287FG
RGB Interface
14 Y
15 Cb
13 Cr
Clamp Pulse
IC805
Sync-Sepa
IC801
IC501
LA73026AV (1/2)
SCART Interface
5 SCVY
39 SCL
40 SCB
Audio Input Circuit
4L/4R <from SDEB ASSY>
IC702
Audio Selector with Electric A.T.T
LC75342M
5 L
26 R
EVOLCLK
EVOLDATA <u-com>
EVOLCE
JA1301
JA1302
IN2 (Front)
S C Y V L R
SDET2 <u-com>
CN1301
CN705
JA651 Optical OUT
Output Circuit
JA501
AV1
R/C Out
B Out
G Out
V/Y Out
V/Y In
L In
R In
L Out
R Out
IC501
LA73026AV (2/2)
SCART Interface
U/V Out
IC502
TC7W53FU
Video SW
IC503
MM1511XN
Y/C Mix
Muting (Discrete)
LAMUTE RAMUTE <MAIN>
IC701
LA73033
Video Selector & Video Driver (2/2)
R/C 60
B 56
G 58
Y 63
C 65
V 68
45 R
53 B
51 G
41 C
43 Y
IC806
MM1501XN
Video SW
AV2_R/C In
IC808
MM1501XN
Video SW
AV2_B In
IC807
MM1501XN
Video SW
AV2_G In
LPF
JA700
OUT
Y
C
Comp
L
R

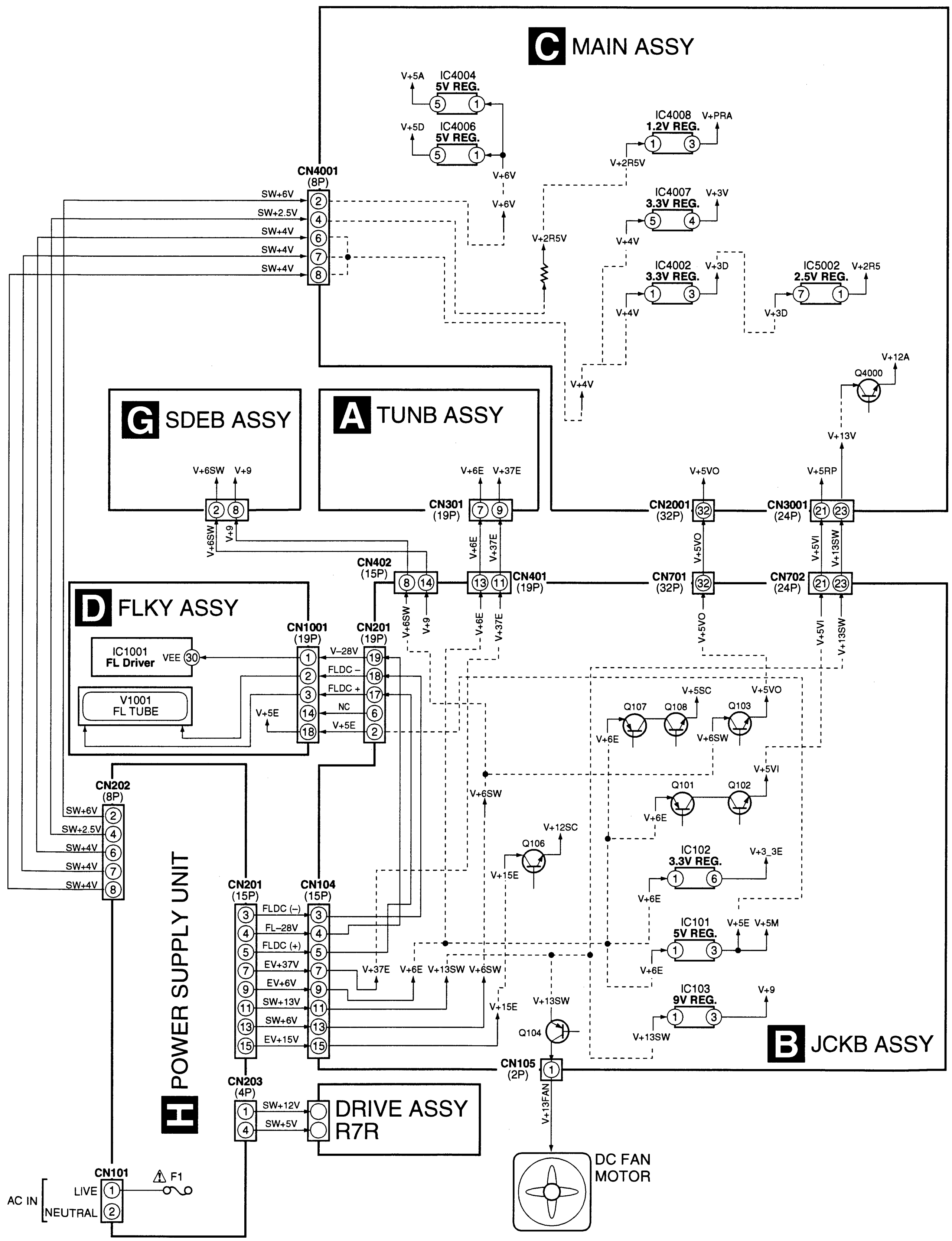

IC202
Tuner/FL
Control U-com
PEG035B-K
<IC702> EVOLCLK
EVOLDATA
EVOLCE
<JA601> SDET2
<Q702> SYNCAFT
<IC701> SYNC
<IC701> SCL
SDA
SWSTBY
<CN401 Pin19> AGC
<CN401 Pin15> TUON
ASCK
SST to M
SSM to TSIS
HST to M
HSM to TSYS
XRESET
PCMOUT
2
CN703
< from DRIVE >
SPDIF
1
PCMOUT
13
RAMUTE
16
17
LAMUTE
18
22
23
24
CN702
< from/to MAIN >
SELR
3
4
SELL
5
6
SELC/CB
7
8
SELV/Y
9
10
SELCR
11
12
13
14
15
16
L
17
18
R
19
20
R
21
22
B
23
24
G
25
26
C
27
28
Y
29
30
31
32
CN701
< to/from MAIN >
FLCK, FLDATA, FLSTB
IC1001
FL Driver
PT6315
V1001
FL Display
D
FLKY ASSY
(VWG2489)
KEY1, KEY2, KEY3
S1001-S1009
S1201-S1203
Front Keys
E
KIRB
ASSY
(VWG2490)
IC1201
IR Detector
CN201
CN1001
SELIR
JA200
SR In
Q102,Q104
FAN
Driver
FAN
SCLEEP
SDAEEP
IC204
EEPROM
BR24L32F-W
BT201
Battery
XINTRA
SCL
SDA
IC203
Real-Time
Clock
RS5C372A
Other Devices
X201
XIN, XOUT
Ceramic
Resonator
IC201
XRESETIN
Reset IC
PST3265
U-com I/F

3.1.3 MAIN ASSY BLOCK DIAGRAM

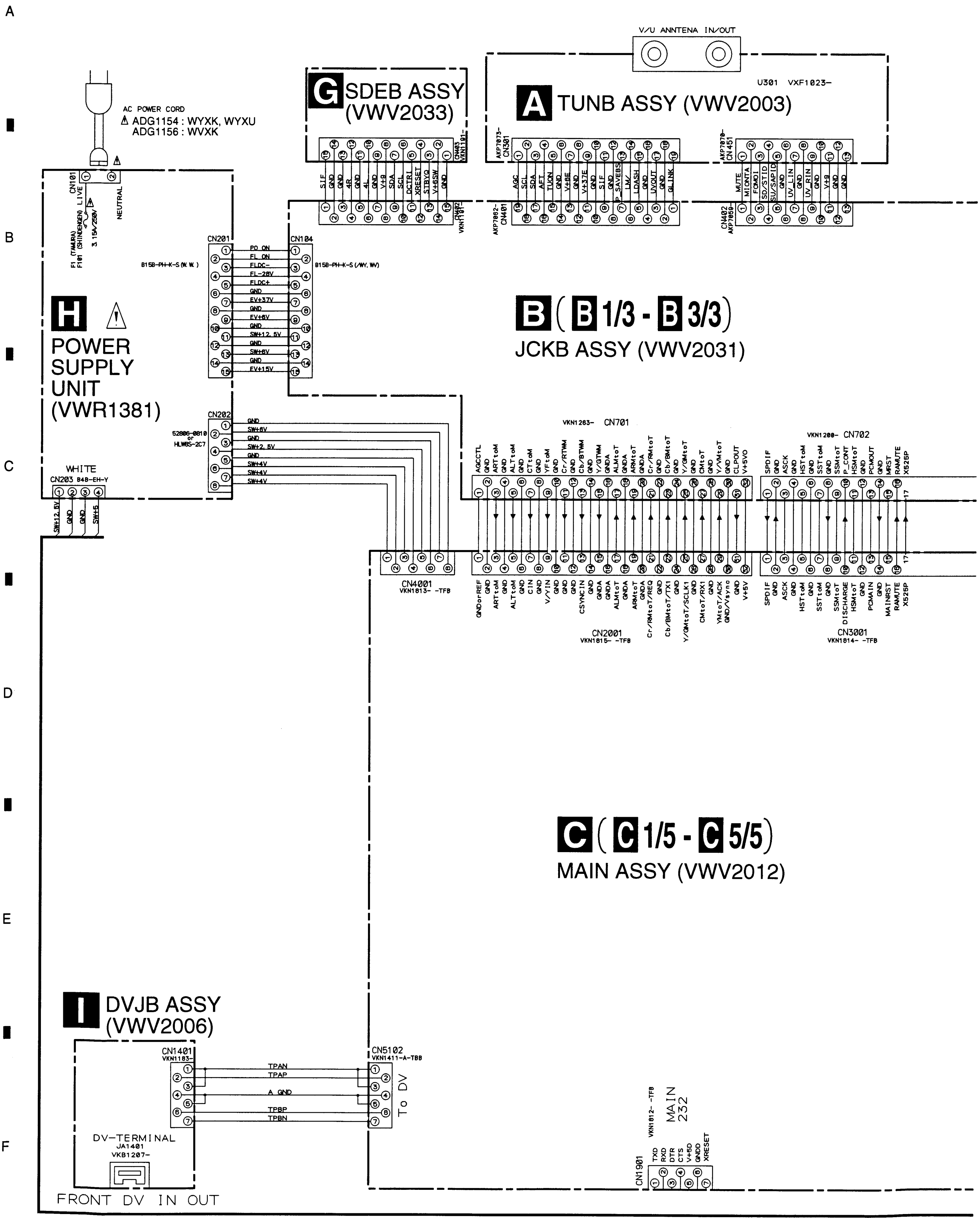

C
MAIN ASSY
(VWV2012)
To JCKB ASSY
CN2001
AUDIO LR OUT
IC3251
AUDIO LR IN
VIDEO Y,C,Yp,Cb,Cr OUT
V/Y IN
AGC
IC2302
Cr IN
Cb IN
PEDCTL
C IN
IC2211
IC2031
ACC
RGB_H
IC3101
AK5381VT
A/D
IC3201
PCM1742KE
DAC
IC3403
ADCCLKO
To JCKB ASSY
CN3001
D.OUT
CD D.OUT
TO TUNER u-COM
IC1301
ENC
SDRAM
MT48LC4M32B2TG-7
ECLK0
IC1201
DEC
SDRAM
W986416DH-6
DCLK0
IC1001
M65673WG
1 Chip System Codec
• MPEG2 PS Encode
• AC-3/Linear PCM Audio Encode
• 2ch ATA/ATAPI Interface
• MPEG2 PS Decode
• AC-3/MPEG1/Linear PCM Audio Decode
To Writer
K4S561632E-TC75
IC1401
ATA SDRAM
ATA BUS
CN4401
ARCLK0
SERIAL
CN1901
IC1102
FLASH
VYW2179


VSS1195
X4102
VCXO
Input Mster clock
IC4101
27M
ADMCLKI
33/36M
IC3402
SM8707KV
PLL IC
24M
SRC**I
IC3301
SRC
SM5950AM
SRC**O
AMCLK1
36M
AMCLK2
33M
VMCLKI
27M
IC4205
TC7WHU04FU
Play Mster clock
IC4206
DVPLLCK(ADMCLKI)
DVVPWM
DVVCLKO
IC5341
VCLKI
HCLK0
HOST BUS
IC5202
UPD72893BGD-LML
LINK/DV CODEC
MCLK
SCLK
UPD72852AGB-8EU
IC5101
Phy
CN5102
DV
IC1101
CPU SDRAM
K4S281632E-TC75
IC5204
DV SDRAM
K4S161622D-TC80

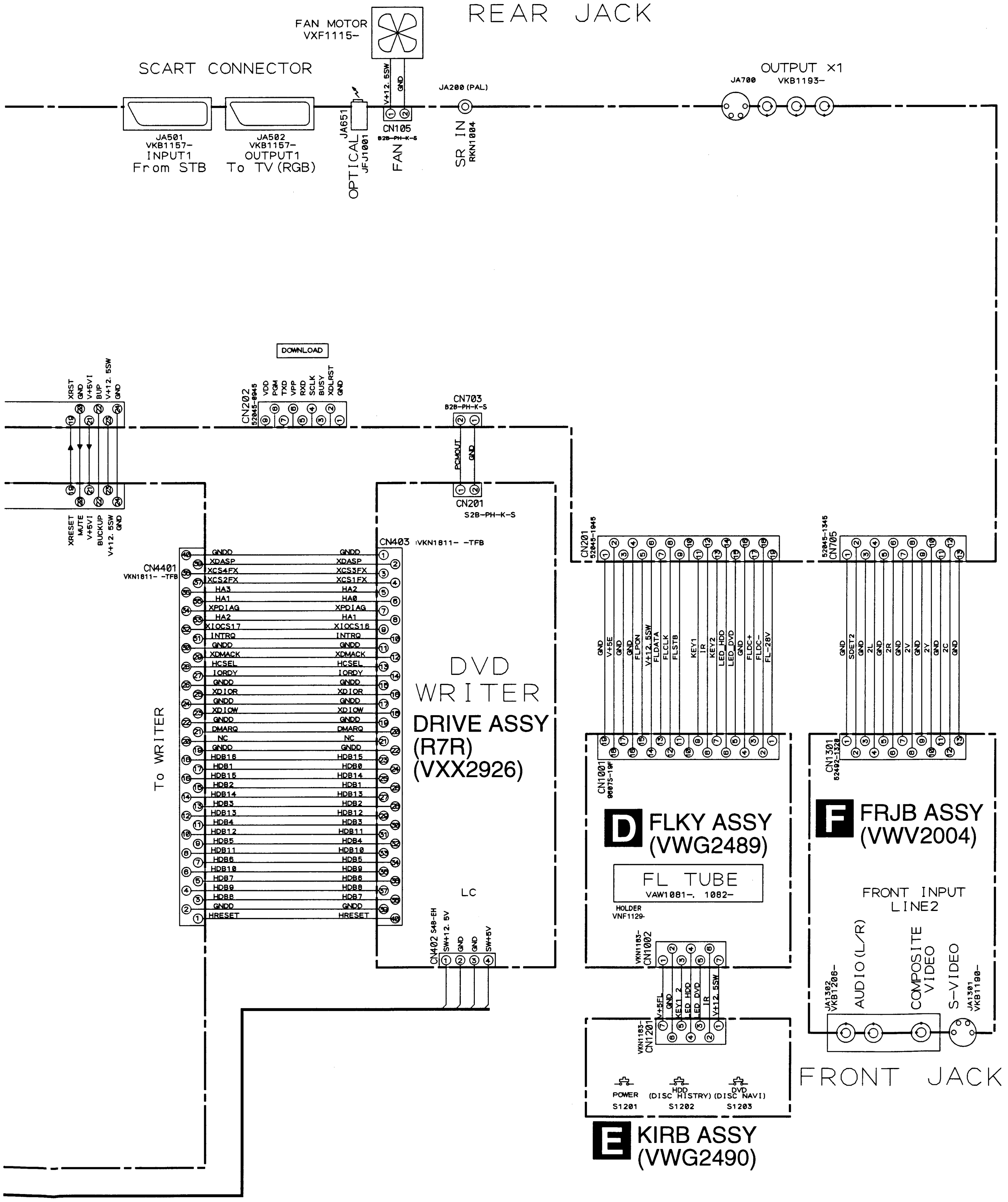
3.1.4 POWER BLOCK DIAGRAM


C MAIN ASSY
IC4004 5V REG.
V+5A
IC4006 5V REG.
V+5D
IC4008 1.2V REG.
V+PRA
V+2R5V
IC4007 3.3V REG.
V+3V
V+4V
IC4002 3.3V REG.
V+3D
IC5002 2.5V REG.
V+2R5
V+6V
CN4001 (8P)
SW+6V
SW+2.5V
SW+4V
Q4000
V+12A
V+13V
G SDEB ASSY
V+6SW
V+9
A TUNB ASSY
V+6E
V+37E
CN301 (19P)
CN2001 (32P)
V+5VO
CN3001 (24P)
V+5RP
V+5VI
V+13SW
CN402 (15P)
CN401 (19P)
CN701 (32P)
CN702 (24P)
D FLKY ASSY
IC1001 FL Driver
VEE
V1001 FL TUBE
CN1001 (19P)
CN201 (19P)
V–28V
FLDC –
FLDC +
NC
V+5E
V+5SC
Q107
Q108
Q103
Q101
Q102
V+6SW
V+12SC
Q106
V+15E
IC102 3.3V REG.
V+3_3E
IC101 5V REG.
V+5M
IC103 9V REG.
V+9
Q104
V+13SW
B JCKB ASSY
CN105 (2P)
V+13FAN
DC FAN MOTOR
CN202 (8P)
SW+6V
SW+2.5V
SW+4V
H POWER SUPPLY UNIT
CN201 (15P)
CN104 (15P)
FLDC (–)
FL–28V
FLDC (+)
EV+37V
EV+6V
SW+13V
SW+6V
EV+15V
CN203 (4P)
SW+12V
SW+5V
DRIVE ASSY R7R
CN101
F1
AC IN
LIVE
NEUTRAL

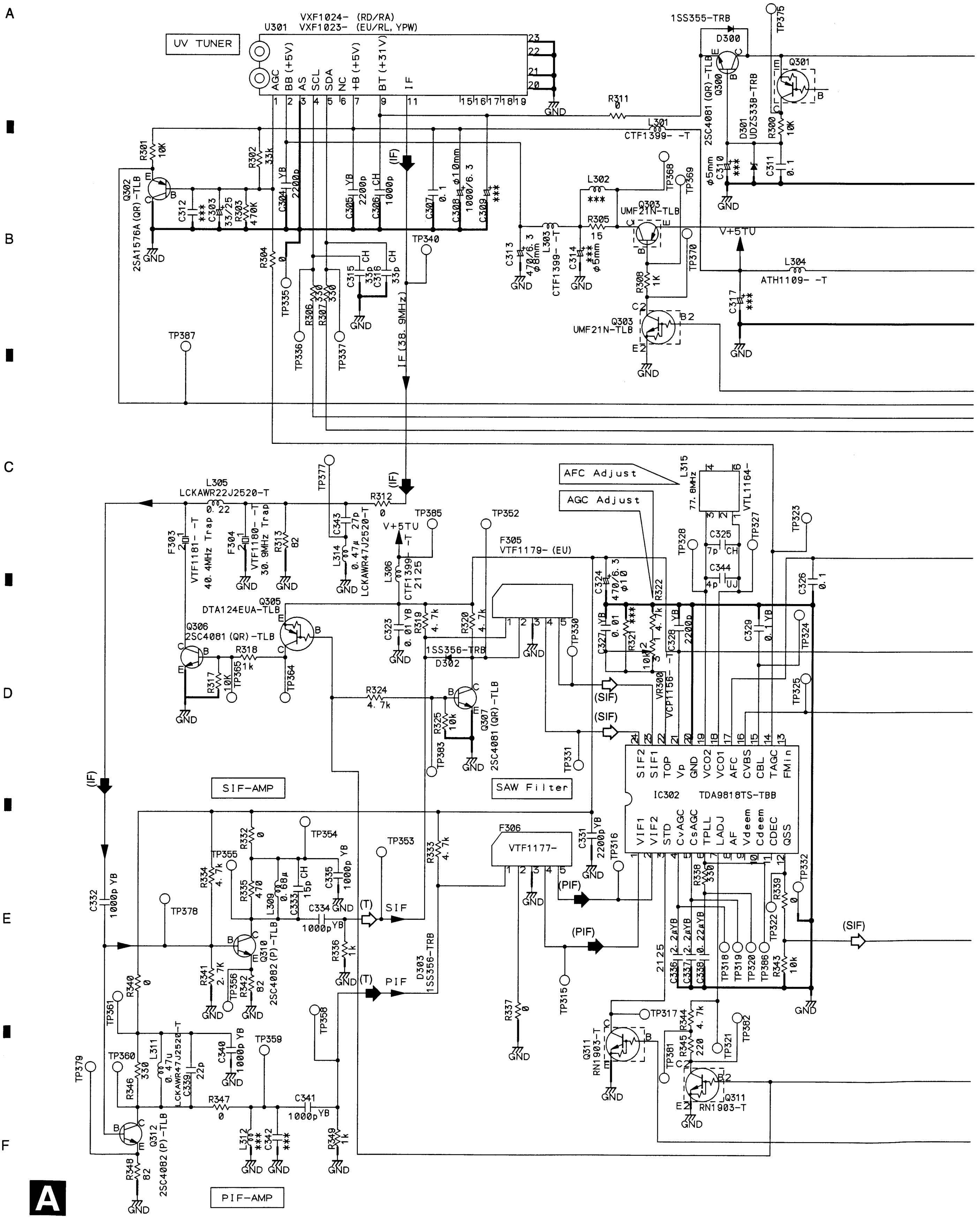
3.2 OVERALL WIRING DIAGRAM


A
B
C
D
E
F
V/U ANNTENA IN/OUT
U301 VXF1023-
G SDEB ASSY (VWV2033)
A TUNB ASSY (VWV2003)
AC POWER CORD
⚠ ADG1154 : WYXK, WYXU
ADG1156 : WVXK
CN101
LIVE
NEUTRAL
F1 (TAMURA)
F101 (SHINDENGEN)
3.15A/250V
CN403 VKN1101-
S.I.F
GND
4R
GND
4L
GND
V+9
SDA
SCL
DCTRL1
XRESET
STBY0
V+6SW
GND
CN402 VKN1101-
AKP7073- CN301
AGC
SCL
SDA
AFT
TUON
V+BE
GND
V+33E
GND
SIF
GND
P_SAVEBS
LM/
LDASH
GND
UVOUT
GND
GL.INK
AKP7062- CN401
AKP7070- CN451
MUTE
MIONTA
FOMOI
SD/STID
SU/SAPID
GND
UV_LIN
GND
UV_RIN
GND
V+9
GND
GND
CN402 AKP7059-
CN201
CN104
B15B-PH-K-S (W.W.)
B15B-PH-K-S (/WY.WV)
PO ON
FL ON
FLDC-
FL-28V
FLDC+
GND
EV+37V
GND
EV+6V
GND
SW+12.5V
GND
SW+6V
GND
EV+15V
H ⚠
POWER SUPPLY UNIT (VWR1381)
B (B 1/3 - B 3/3)
JCKB ASSY (VWV2031)
CN202
52806-0810 or HLW8S-2C7
GND
SW+6V
GND
SW+12.5V
GND
SW+4V
SW+4V
SW+4V
WHITE
CN203 B4B-EH-Y
SW+12.5V
GND
GND
SW+5
VKN1263- CN701
AGCCTL
GND
ARTtoM
GND
ALTtoM
GND
CTtoM
GND
YFtoM
GND
Cr/RTWM
GND
Cb/BTWM
GND
Y/GTWM
GNDA
ALMtoT
GNDA
ARMtoT
GNDA
Cr/RMtoT
GND
Cb/BMtoT
GND
Y/GMtoT
GND
CMtoT
GND
Y/VMtoT
GND
CLPOUT
V+5VO
VKN1200- CN702
SPDIF
GND
ASCK
GND
HSTtoM
GND
SSTtoM
GND
SSMtoT
P_CONT
HSMtoT
GND
PCMOUT
GND
MRST
RAMUTE
X525P
CN4001 VKN1013- -TFB
GNDorREF
GND
ARTtoM
GND
ALTtoM
GND
CIN
GND
V/YIN
GND
GND
CSYNCIN
GNDA
GNDA
GNDA
ALMtoT
GNDA
ARMtoT
GNDA
Cr/RMtoT/REQ
GND
Cb/BMtoT/TX1
GND
Y/GMtoT/SCLK1
GND
CMtoT/RX1
GND
YMtoT/ACK
GND/Vsync
V+5V
CN2001 VKN1015- -TFB
SPDIF
GND
ASCK
GND
HSTtoM
GND
SSTtoM
GND
SSMtoT
DISCHARGE
HSMtoT
GND
PCMAIN
GND
MAINRST
RAMUTE
X525P
CN3001 VKN1014- -TFB
C (C 1/5 - C 5/5)
MAIN ASSY (VWV2012)
I DVJB ASSY (VWV2006)
CN1401 VKN1183-
CN5102 VKN1411-A-TBB
TPAN
TPAP
A GND
TPBP
TPBN
To DV
DV-TERMINAL JA1401 VKB1207-
FRONT DV IN OUT
VKN1012- -TFB
MAIN 232
CN1901
TXD
RXD
DTR
CTS
V+5D
GNDD
XRESET

- When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- ▭ : The power supply is shown with the marked box.

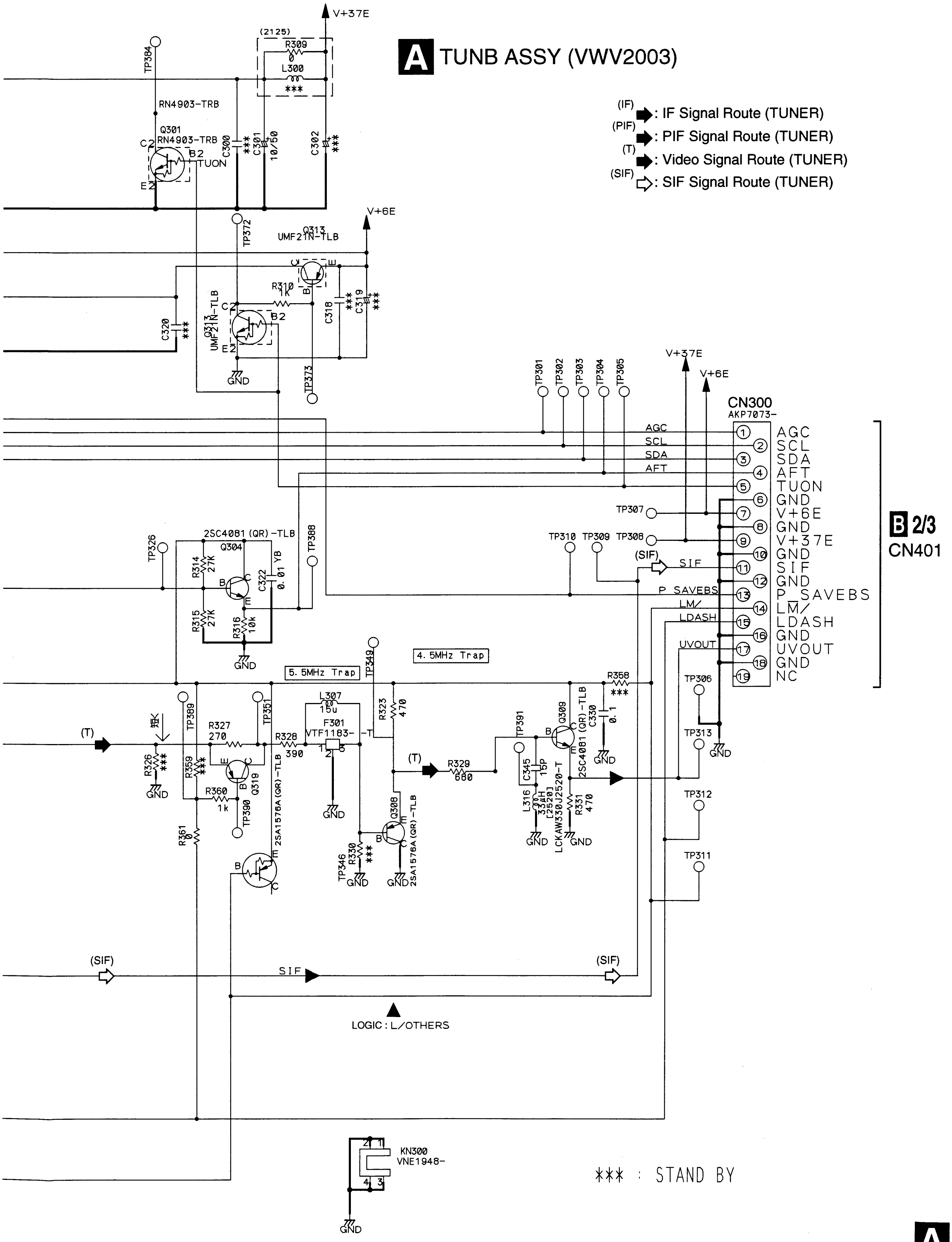

REAR JACK
FAN MOTOR
VXF1115-
SCART CONNECTOR
JA501
VKB1157-
INPUT1
From STB
JA502
VKB1157-
OUTPUT1
To TV (RGB)
JA651
OPTICAL
JFJ1001
CN105
B2B-PH-K-S
V+12.5SW
GND
FAN
JA200 (PAL)
SR IN
RKN1004
OUTPUT ×1
JA700
VKB1193-
DOWNLOAD
CN202
52045-0045
VDD
PGM
TXD
VPP
RXD
SCLK
BUSY
XDLRST
GND
XRST
GND
V+5VI
BUP
V+12.5SW
GND
XRESET
MUTE
V+5VI
BUCKUP
V+12.5SW
GND
CN703
B2B-PH-K-S
PCMOUT
GND
CN201
S2B-PH-K-S
CN4401
VKN1811- -TFB
CN403 VKN1811- -TFB
GNDD
XDASP
XCS4FX
XCS2FX
XCS3FX
XCS1FX
HA3
HA1
HA2
HA0
XPDIAG
XIOCS17
XIOCS16
INTRQ
XDMACK
HCSEL
IORDY
XDIOR
XDIOW
DMARQ
NC
HDB0
HDB1
HDB2
HDB3
HDB4
HDB5
HDB6
HDB7
HDB8
HDB9
HDB10
HDB11
HDB12
HDB13
HDB14
HDB15
HRESET
To WRITER
DVD WRITER
DRIVE ASSY
(R7R)
(VXX2926)
LC
CN402 S4B-EH
SW+12.5V
GND
GND
SW+5V
CN201
52045-1045
GND
V+5E
GND
GND
FLPON
V+12.5SW
FLDATA
FLCLK
FLSTB
KEY1
IR
KEY2
LED_HDD
LED_DVD
GND
FLDC+
FLDC-
FL-28V
52045-1345
CN705
GND
SDET2
GND
2L
GND
2R
GND
2V
GND
2Y
GND
2C
GND
CN1001
90075-10F
CN1301
52492-1320
D FLKY ASSY
(VWG2489)
FL TUBE
VAW1081-, 1082-
HOLDER
VNF1129-
VKN1183-
CN1002
V+5FL
GND
KEY1_2
LED_HDD
LED_DVD
IR
V+12.5SW
VKN1183-
CN1201
POWER
S1201
HDD
(DISC HISTRY)
S1202
DVD
(DISC NAVI)
S1203
E KIRB ASSY
(VWG2490)
F FRJB ASSY
(VWV2004)
FRONT INPUT
LINE2
JA1302
VKB1206-
AUDIO (L/R)
COMPOSITE
VIDEO
S-VIDEO
JA1301
VKB1190-
FRONT JACK

3.3 TUNB ASSY


A
B
C
D
E
F
UV TUNER
U301
VXF1024- (RD/RA)
VXF1023- (EU/RL, YPW)
AGC
BB (+5V)
AS
SCL
SDA
NC
+B (+5V)
BT (+31V)
IF
GND
R311 0
L301 CTF1399- -T
1SS355-TRB
D300
Q300 2SC4081 (QR)-TLB
D301 UDZS33B-TRB
Q301
R300 10K
C310 φ5mm ***
C311 0.1
TP375
R301 10K
Q302 2SA1576A (QR)-TLB
R302 33k
C312 ***
C303 33/25
R303 470K
C304 YB 2200p
C305 YB 2200p
C306 CH 1000p
(IF)
C307 0.1
C308 φ10mm 1000/6.3
C309 ***
L302 ***
TP368
TP369
Q303 UMF21N-TLB
R305 15
V+5TU
C313 470/6.3 φ8mm
L303 CTF1399- -T
C314 *** φ5mm
R308 1K
TP370
L304 ATH1109- -T
C317 ***
R304 0
TP335
R306 330
R307 330
C315 CH 33p
C316 CH 33p
TP340
TP336
TP337
IF (38.9MHz)
TP387
AFC Adjust
AGC Adjust
L315 VTL1164- 77.8MHz
TP377
R312 0
L305 LCKAWR22J2520-T
22
F303 VTF1181- -T 40.4MHz Trap
F304 VTF1180- -T 30.9MHz Trap
R313 82
C343 27p
L314 0.47μ LCKAWR47J2520-T
V+5TU
TP385
L306 CTF1399- -T
2125
TP352
F305 VTF1179- (EU)
C324 470/6.3 φ10
R322
TP328
C325 7p CH
C344 4p UJ
TP327
TP323
C326 0.1
Q305 DTA124EUA-TLB
Q306 2SC4081 (QR)-TLB
R318 1k
R317 10K
TP365
TP364
C323 0.01 YB
R319 4.7k
R320 4.7k
1SS356-TRB
D302
TP330
C327 0.01 YB
R321 ***
C328 2200p YB
VR300 VCP1156- 10k
C329 0.1 YB
TP324
R324 4.7k
Q307 2SC4081 (QR)-TLB
R325 10k
TP383
(SIF)
TP325
TP331
SAW Filter
SIF-AMP
IC302 TDA9818TS-TBB
SIF2 SIF1 TOP Vp GND VCO2 VCO1 AFC CVBS CBL TAGC FMin
VIF1 VIF2 STD CvAGC CsAGC TPLL LADJ AF Vdeem Cdeem CDEC QSS
R332 0
TP354
TP355
C335 YB 1000p
TP353
R334 4.7k
R335 470
L309 0.68μ
C333 CH 15p
C334 1000p YB
(T)
SIF
R333 4.7k
F306 VTF1177-
C331 YB 2200p
TP316
(PIF)
R338 330
R339 0
TP332
C332 1000p YB
TP378
Q310 2SC4082 (P)-TLB
R341 2.7K
R342 82
TP356
R336 1k
PIF
D303 1SS356-TRB
TP315
R337 0
2125
C336 2.2μ YB
C337 2.2μ YB
C338 0.22μ YB
TP318
TP319
TP320
TP386
TP322
R343 10k
R340 0
TP361
TP358
TP317
Q311 RN1903-T
R344 4.7k
R345 220
TP321
TP382
TP381
TP360
TP359
R346 330
L311 0.47u LCKAWR47J2520-T
C339 22p
C340 1000p YB
TP379
R347 0
C341 1000p YB
Q312 2SC4082 (P)-TLB
L312 ***
C342 ***
R349 1k
R348 82
PIF-AMP

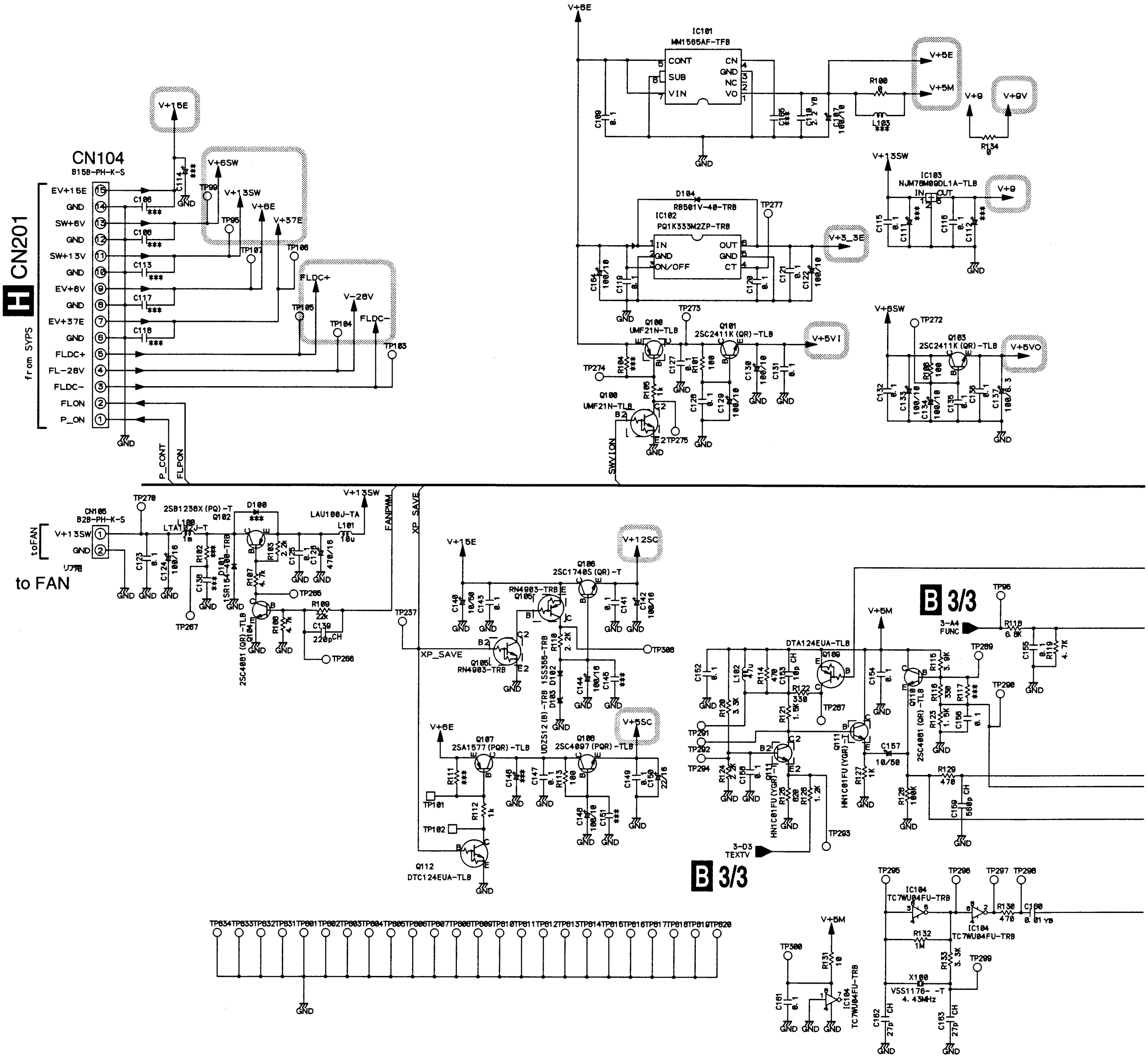
A TUNB ASSY (VWV2003)

(IF) ➡: IF Signal Route (TUNER)
(PIF) ➡: PIF Signal Route (TUNER)
(T) ➡: Video Signal Route (TUNER)
(SIF) ⇨: SIF Signal Route (TUNER)


V+37E
(2125)
R309
0
L300
***
TP384
RN4903-TRB
Q301
RN4903-TRB
C2
B2
E2
TUON
C300
***
C301
10/50
C302
***
V+6E
TP372
Q313
UMF21N-TLB
R310
1K
C318
***
C319
***
C320
***
Q313
UMF21N-TLB
GND
TP373
TP301
TP302
TP303
TP304
TP305
V+37E
V+6E
CN300
AKP7073-
AGC
SCL
SDA
AFT
TUON
GND
V+6E
GND
V+37E
GND
SIF
GND
P_SAVEBS
LM/
LDASH
GND
UVOUT
GND
NC
TP307
TP310
TP309
TP308
(SIF)
SIF
P_SAVEBS
LM/
LDASH
UVOUT
B 2/3
CN401
TP326
2SC4081(QR)-TLB
Q304
R314
27K
C322
0.01 YB
TP388
R315
27K
R316
10K
GND
5.5MHz Trap
4.5MHz Trap
TP349
R358
***
TP306
TP389
R327
270
TP351
L307
15u
F301
VTF1183-
R328
390
R323
470
TP391
Q309
2SC4081(QR)-TLB
C330
0.1
(T)
R326
***
GND
R359
***
Q319
2SA1576A(QR)-TLB
R360
1k
TP390
GND
(T)
R329
680
C345
15P
L316
33uH
[2520]
LCKAW330J2520-T
R331
470
GND
TP313
TP312
TP311
R361
0
Q308
2SA1576A(QR)-TLB
TP346
R330
***
GND
(SIF)
SIF
(SIF)
LOGIC : L/OTHERS
KN300
VNE1948-
GND

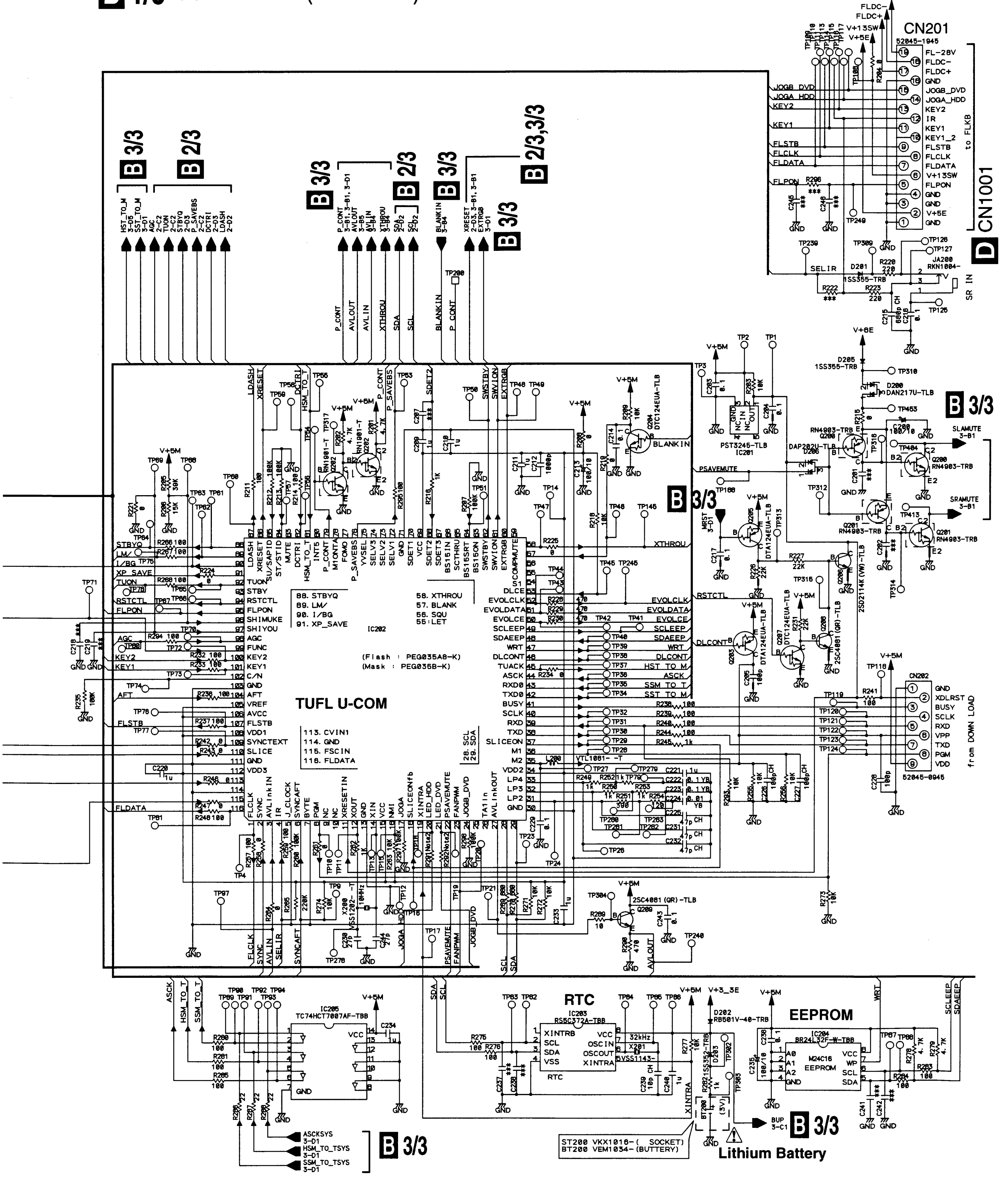
*** : STAND BY

3.4 JCKB ASSY(1/3)


V+6E
IC101
MM1565AF-TFB
CONT
SUB
VIN
CN
GND
NC
VO
V+5E
V+5M
R100
L103
V+9
V+9V
R134
V+15E
CN104
B15B-PH-K-S
CN201
from SYPS
EV+15E
GND
SW+6V
GND
SW+13V
GND
EV+6V
GND
EV+37E
GND
FLDC+
FL-28V
FLDC-
FLON
P_ON
V+6SW
V+13SW
V+6E
V+37E
FLDC+
V-28V
FLDC-
TP99
TP95
TP107
TP106
TP105
TP104
TP103
C106
C108
C113
C117
C118
C114
V+13SW
IC103
NJM78M09DL1A-TLB
IN
OUT
V+9
D104
RB501V-40-TRB
IC102
PQ1K333M2ZP-TRB
IN
GND
ON/OFF
OUT
GND
CT
TP277
V+3_3E
TP273
Q100
UMF21N-TLB
Q101
2SC2411K(QR)-TLB
V+5VI
TP274
V+6SW
TP272
Q103
2SC2411K(QR)-TLB
V+5VO
Q100
UMF21N-TLB
TP275
SWVION
P_CONT
FLPON
CN105
B2B-PH-K-S
to FAN
V+13SW
GND
to FAN
TP270
2SB1238X(PQ)-T
Q102
D100
L100
LTA1R2U-T
LAU100J-TA
L101
V+13SW
FANPWM
XP_SAVE
Q104
2SC4081(QR)-TLB
R109
C139
220p
TP265
TP267
TP266
TP237
V+15E
V+12SC
Q106
2SC1740S(QR)-T
RN4903-TRB
Q105
Q105
RN4903-TRB
XP_SAVE
TP308
1SS355-TRB
UDZS12(B)-TRB
D103
D102
V+6E
Q107
2SA1577(PQR)-TLB
Q108
2SC4097(PQR)-TLB
V+5SC
TP101
TP102
Q112
DTC124EUA-TLB
B 3/3
TP96
3-A4
FUNC
V+5M
DTA124EUA-TLB
Q109
Q110
2SC4081(QR)-TLB
Q111
HN1C01FU(YGR)
TP287
TP289
TP290
TP291
TP292
TP294
TP293
3-D3
TEXTV
B 3/3
TP634 TP633 TP632 TP631 TP601 TP602 TP603 TP604 TP605 TP606 TP607 TP608 TP609 TP610 TP611 TP612 TP613 TP614 TP615 TP616 TP617 TP618 TP619 TP620
GND
V+5M
TP300
IC104
TC7WU04FU-TRB
TP295
TP296
TP297
TP298
IC104
TC7WU04FU-TRB
R132
1M
R133
3.3K
TP299
X100
VSS1176-T
4.43MHz
C162
27p
C163
27p

B 1/3

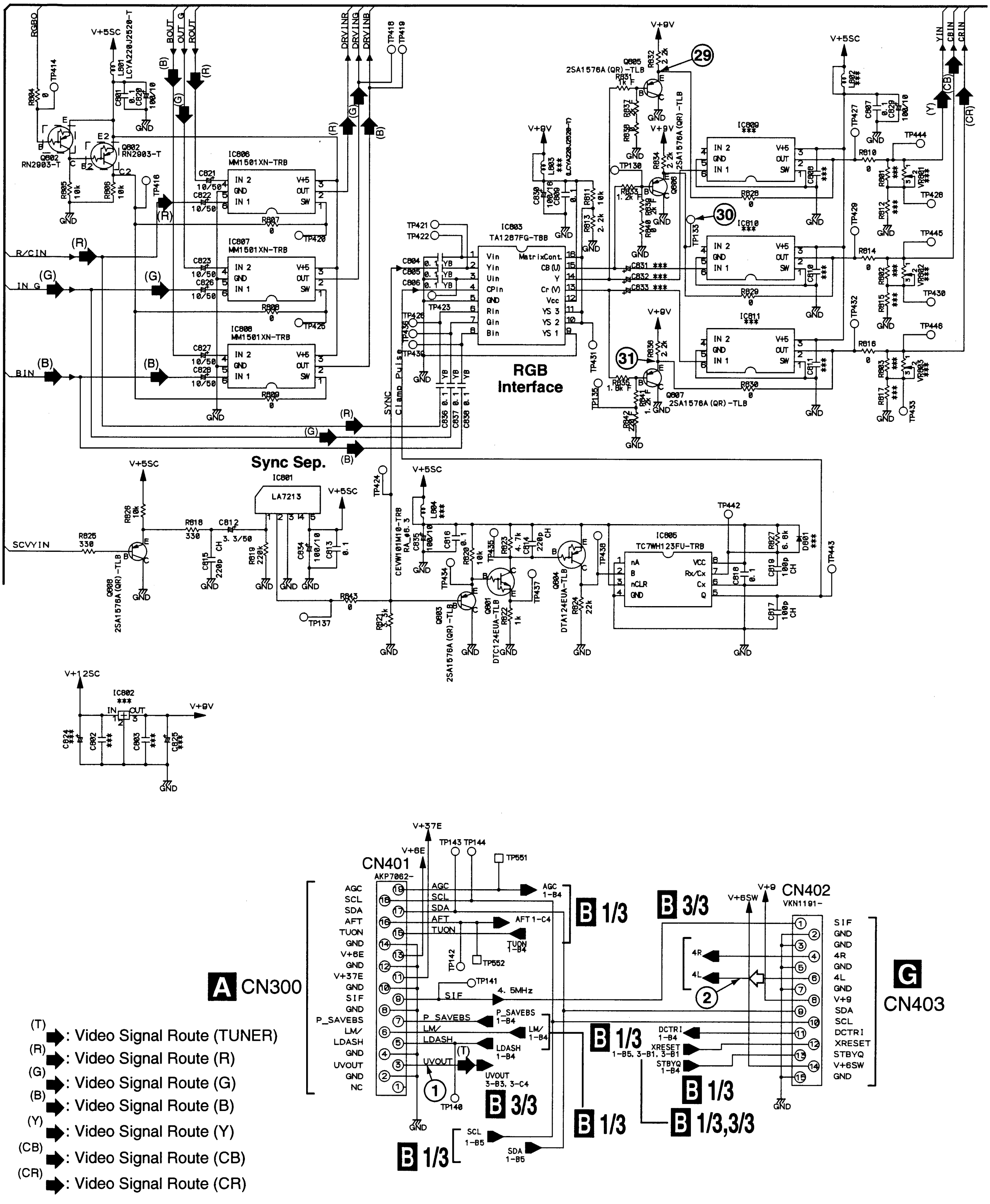
B 1/3 JCKB ASSY (VWV2031)


CN201
52045-1945
FL-28V
FLDC-
FLDC+
GND
JOGB_DVD
JOGA_HDD
KEY2
IR
KEY1
KEY1_2
FLSTB
FLCLK
FLDATA
V+13SW
FLPON
GND
GND
V+5E
GND
to FLKB
D CN1001
SR IN
JA200 RKN1004-
B 3/3
B 2/3
B 2/3,3/3
TUFL U-COM
IC202
(Flash : PEG035A8-K)
(Mask : PEG036B-K)
88. STBYQ
89. LM/
90. I/BG
91. XP_SAVE
58. XTHROU
57. BLANK
56. SQU
55:LET
113. CVIN1
114. GND
115. FSCIN
116. FLDATA
28. SCL
29. SDA
PST3245-TLB
IC201
BLANKIN
PSAVEMUTE
SLAMUTE 3-B1
SRAMUTE 3-B1
RN4903-TRB
DTA124EUA-TLB
DTC124EUA-TLB
2SC4081(QR)-TLB
CN202
52045-0945
GND
XDLRST
BUSY
SCLK
RXD
VPP
TXD
PGM
VDD
from DOWN LOAD
IC205
TC74HCT7007AF-TBB
RTC
IC203
RS5C372A-TBB
XINTRB
SCL
SDA
VSS
VCC
OSCIN
OSCOUT
XINTRA
32kHz
X201
EEPROM
IC204
BR24L32F-W-TBB
M24C16
A0
A1
A2
GND
VCC
WP
SCL
SDA
ASCKSYS 3-D1
HSM_TO_TSYS 3-D1
SSM_TO_TSYS 3-D1
BUP 3-C1
ST200 VKX1016-(SOCKET)
BT200 VEM1034-(BATTERY)
Lithium Battery

*** : STAND BY

3.5 JCKB ASSY(2/3)

B 2/3 JCKB ASSY (VWV2031)


A
B
C
D
E
F
RGBO
V+5SC
TP414
R804 0
L801 LCYA220J2520-T
C801 0.1
C820 100/10
GND
Q802 RN2903-T
R805 10k
R806 10k
TP416
BOUT
GOUT
ROUT
IC806 MM1501XN-TRB
IN 2
GND
IN 1
V+5
OUT
SW
C821 10/50
C822 10/50
R807 0
TP420
IC807 MM1501XN-TRB
C823 10/50
C826 10/50
R808 0
TP425
IC808 MM1501XN-TRB
C827 10/50
C828 10/50
R809 0
R/CIN
IN G
BIN
DRVINR
DRVING
DRVINB
TP418
TP419
TP421
TP422
C804 0.1 YB
C805 0.1 YB
C806 0.1 YB
TP423
TP426
TP436
TP439
IC803 TA1287FG-TBB
Vin
Yin
Uin
CPIn
GND
Rin
Gin
Bin
MatrixCont.
CB (U)
Y
Cr (V)
Vcc
YS 3
YS 2
YS 1
C836 0.1 YB
C837 0.1 YB
C838 0.1 YB
RGB Interface
SYNC
Clamp Pulse
V+9V
L803 LCYA220J2520-T ***
C839 100/16
C809 0.1
R811 10k
R813 2.2k
TP431
V+9V
Q805 2SA1576A (QR)-TLB
R832 2.2k
R831 1k F
R837
R838
R834 2.2k
Q806 2SA1576A (QR)-TLB
R833 1.2k F
R839 2k
R840 0
TP130
TP133
C831 ***
C832 ***
C833 ***
29
30
31
R836 2.2k
R835 1.8k F
R841 1.2k
R842 2.2k
Q807 2SA1576A (QR)-TLB
TP135
IC809 ***
IC810 ***
IC811 ***
C808 ***
C810 ***
C811 ***
R828 0
R829 0
R830 0
V+5SC
L802 ***
C807 0.1
C829 100/10
TP427
TP429
TP432
TP444
TP445
TP446
TP428
TP430
TP433
R810 0
R814 0
R816 0
R801 ***
R802 ***
R803 ***
R812 ***
R815 ***
R817 ***
VR901 ***
VR902 ***
VR903 ***
YIN
CBIN
CRIN
SCVYIN
V+5SC
R826 10k
R825 330
Q808 2SA1576A (QR)-TLB
R818 330
C812 3.3/50
C815 220p CH
Sync Sep.
IC801 LA7213
R819 220k
C834 100/10
C813 0.1
V+5SC
TP424
R843 0
TP137
R821 3k
CEVW101M10-TRB
RA 4.3
L804 ***
C835 100/10
C816 0.1
R820 10k
TP435
R823 4.7k
C814 220p CH
TP434
Q803 2SA1576A (QR)-TLB
Q801 DTC124EUA-TLB
R822 1k
TP437
Q804 DTA124EUA-TLB
R824 22k
TP438
IC805 TC7WH123FU-TRB
nA
B
nCLR
GND
VCC
Rx/Cx
Cx
Q
TP442
R827 6.8k
D801 ***
C819 100p CH
C818 0.1
C817 100p CH
TP443
V+12SC
IC802 ***
IN
OUT
V+9V
C824 ***
C802 ***
C803 ***
C825 ***
V+37E
V+6E
TP143
TP144
TP551
CN401
AKP7062-
AGC
SCL
SDA
AFT
TUON
GND
V+6E
GND
V+37E
GND
SIF
GND
P_SAVEBS
LM/
LDASH
GND
UVOUT
GND
NC
A CN300
AGC 1-B4
AFT 1-C4
TUON 1-B4
B 1/3
TP142
TP552
TP141
4.5MHz
SIF
P_SAVEBS 1-B4
LM/ 1-B4
LDASH 1-B4
UVOUT 3-B3, 3-C4
B 3/3
TP140
B 1/3
SCL 1-B5
SDA 1-B5
B 1/3
B 3/3
V+6SW
V+9
CN402
VKN1191-
4R
4L
2
DCTRI 1-B4
XRESET 1-B5, 3-B1, 3-B1
STBYQ 1-B4
B 1/3
B 1/3
B 1/3,3/3
SIF
GND
GND
4R
GND
4L
GND
V+9
SDA
SCL
DCTRI
XRESET
STBYQ
V+6SW
GND
G CN403

(T) ➡: Video Signal Route (TUNER)

(R) ➡: Video Signal Route (R)

(G) ➡: Video Signal Route (G)

(B) ➡: Video Signal Route (B)

(Y) ➡: Video Signal Route (Y)

(CB) ➡: Video Signal Route (CB)

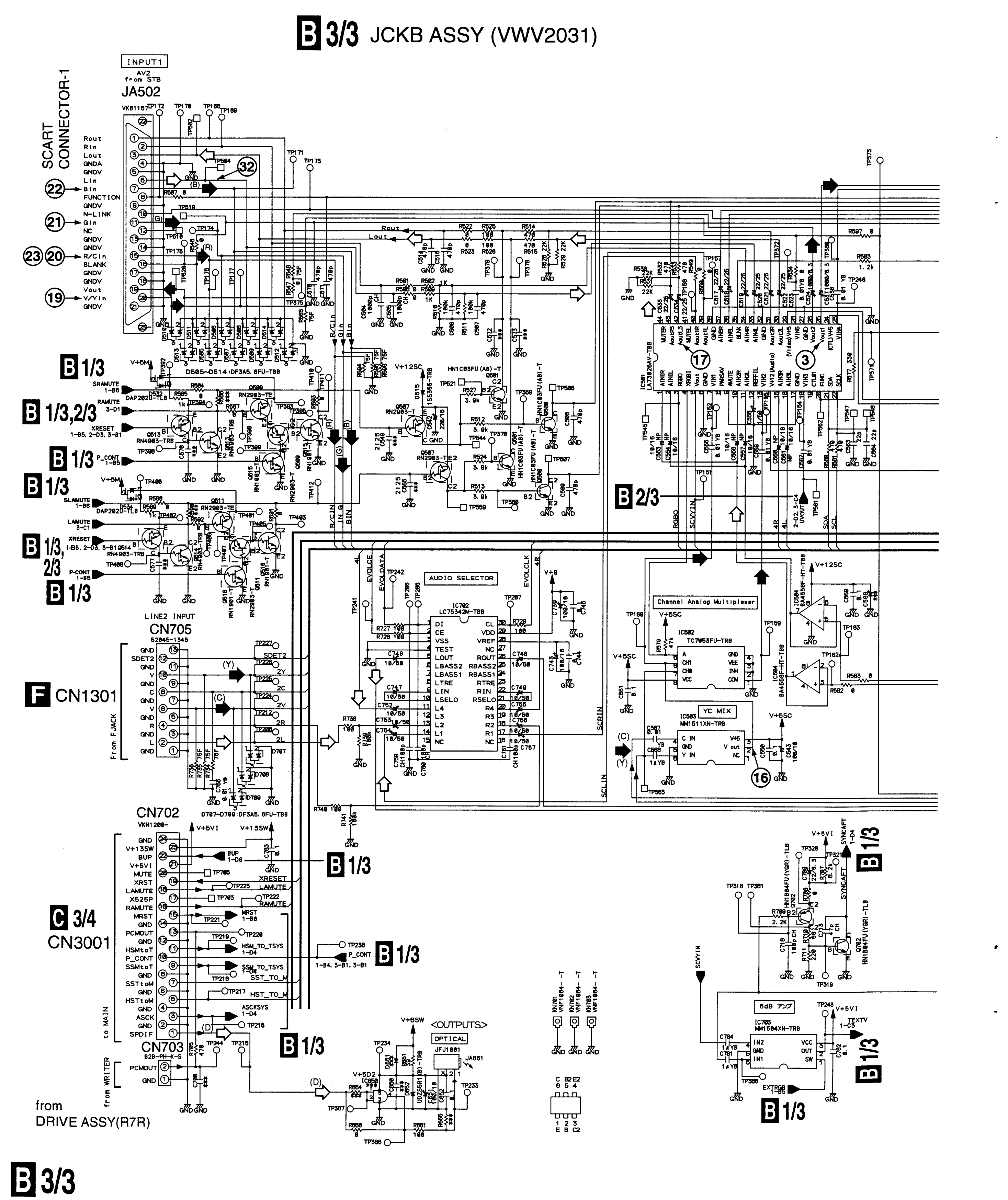
(CR) ➡: Video Signal Route (CR)

⇨: Audio Signal Route (L ch)

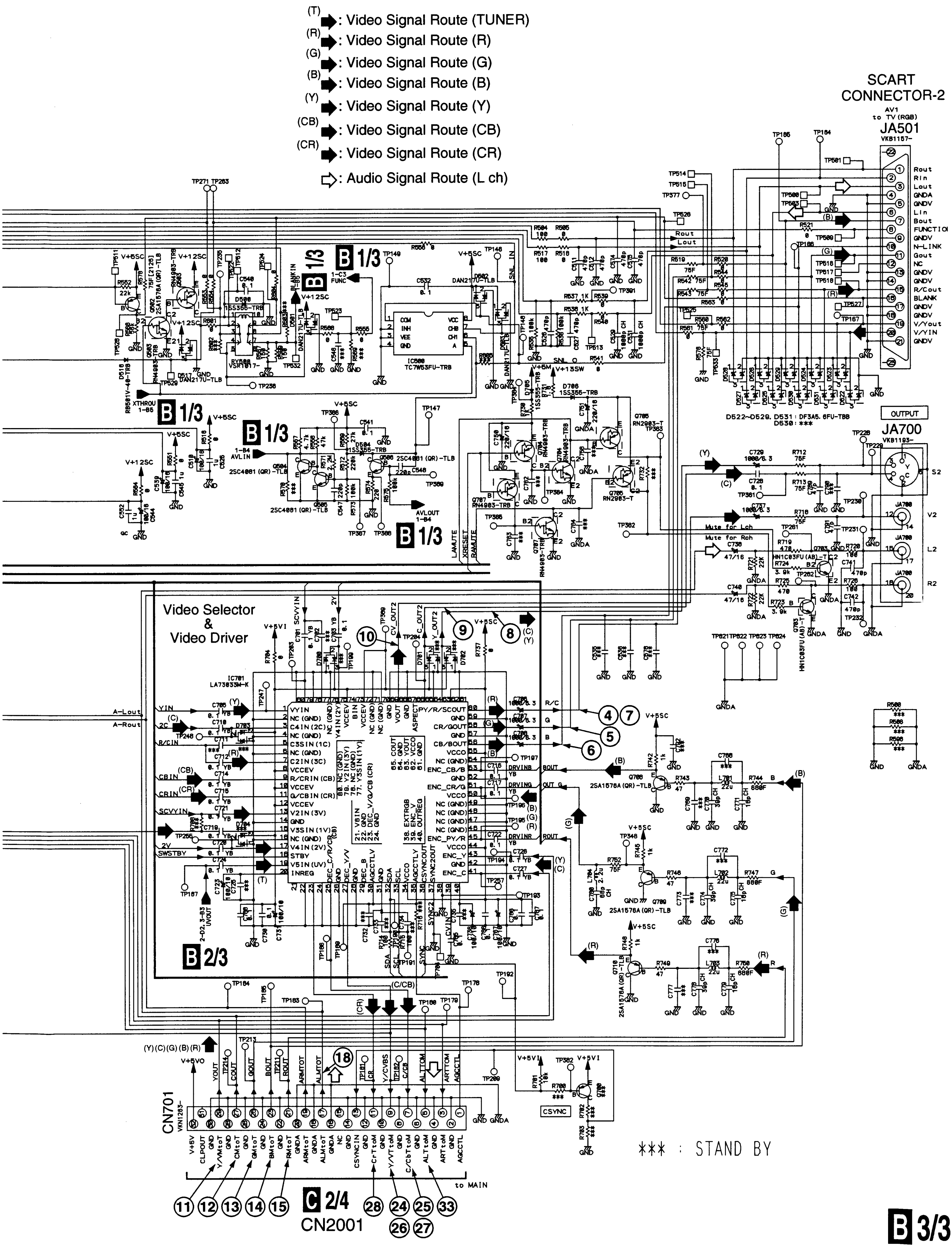
*** : STAND BY

B 2/3 **B 2/3**

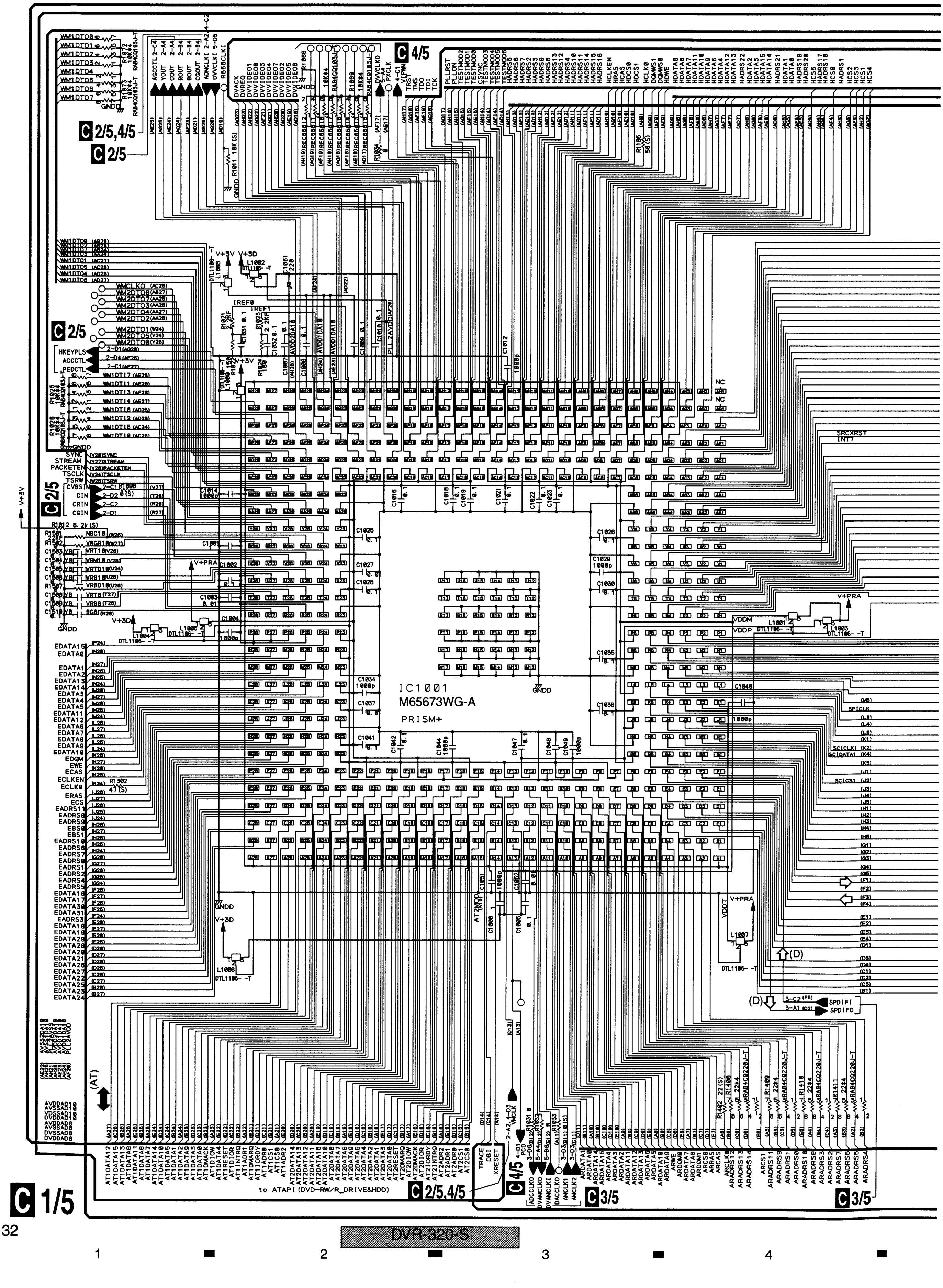
3.6 JCKB ASSY(3/3)


A
B
C
D
E
F
B 3/3 JCKB ASSY (VWV2031)
INPUT1
AV2 from STB
JA502
VKB1157
SCART CONNECTOR-1
Rout
Rin
Lout
GNDA
GNDV
Lin
Bin
FUNCTION
GNDV
N-LINK
Gin
NC
GNDV
R/Cin
BLANK
GNDV
GNDV
Vout
V/Yin
GNDV
㉒
㉑
⑳
㉓
⑲
㉜
D505~D514:DF3A6.8FU-TBB
B 1/3
B 1/3,2/3
B 1/3
B 1/3
B 1/3, 2/3
B 1/3
SRAMUTE 1-B6
RAMUTE 3-D1
XRESET 1-B5, 2-D3, 3-B1
P_CONT 1-B5
SLAMUTE 1-B6
LAMUTE 3-C1
XRESET I-B5, 2-D3, 3-B1
P-CONT 1-B6
DAP202U-TLB
RN4903-TRB
RN2903-TE
RN1901-T
HN1C03FU(AB)-T
1SS355-TRB
Rout
Lout
R/CIN
GIN
BIN
IC501
LA73026AV-TBB
⑰
③
B 2/3
RGBO
SCVYIN
4R
4L
2-D2,3-C4 DVOUT
SDA
SCL
V+12SC
IC504
BA4558F-HT-TBB
Channel Analog Multiplexer
IC502
TC7W53FU-TRB
V+5SC
IC503
MM1511XN-TRB
YC MIX
⑯
AUDIO SELECTOR
IC702
LC75342M-TBB
EVOLCE
EVOLDATA
EVOLCLK
SCRIN
SCLIN
LINE2 INPUT
CN705
52045-1345
SDET2
GND
Y
C
V
R
L
F CN1301
From FJACK
D707~D709:DF3A6.8FU-TBB
CN702
VKN1200-
V+13SW
BUP
V+5VI
MUTE
XRST
LAMUTE
X525P
RAMUTE
MRST
PCMOUT
HSMtoT
P_CONT
SSMtoT
SSTtoM
HSTtoM
ASCK
SPDIF
C 3/4
CN3001
to MAIN
BUP 1-D6
XRESET
LAMUTE
RAMUTE
MRST 1-B6
HSM_TO_TSYS 1-D4
SSM_TO_TSYS 1-D4
SST_TO_M
HST_TO_M
ASCKSYS 1-D4
P_CONT 1-B4, 3-B1, 3-B1
B 1/3
CN703
B2B-PH-K-S
from WRITER
from DRIVE ASSY(R7R)
<OUTPUTS>
OPTICAL
JFJ1001
JA651
IC650
UDZS6R1(B)-TRB
V+6SW
V+5D2
KN701 VNF1004-T
KN702 VNF1004-T
KN703 VNF1004-T
C B2 E2
6 5 4
1 2 3
E B C2
SCVYIN
SYNCAFT
B 1/3
HN1B04FU(YGR)-TLB
Q702
6dB アンプ
IC703
MM1504XN-TRB
IN2
GND
IN1
VCC
OUT
SW
TEXTV 1-C5
B 1/3
EXTRGB 1-B5
B 1/3

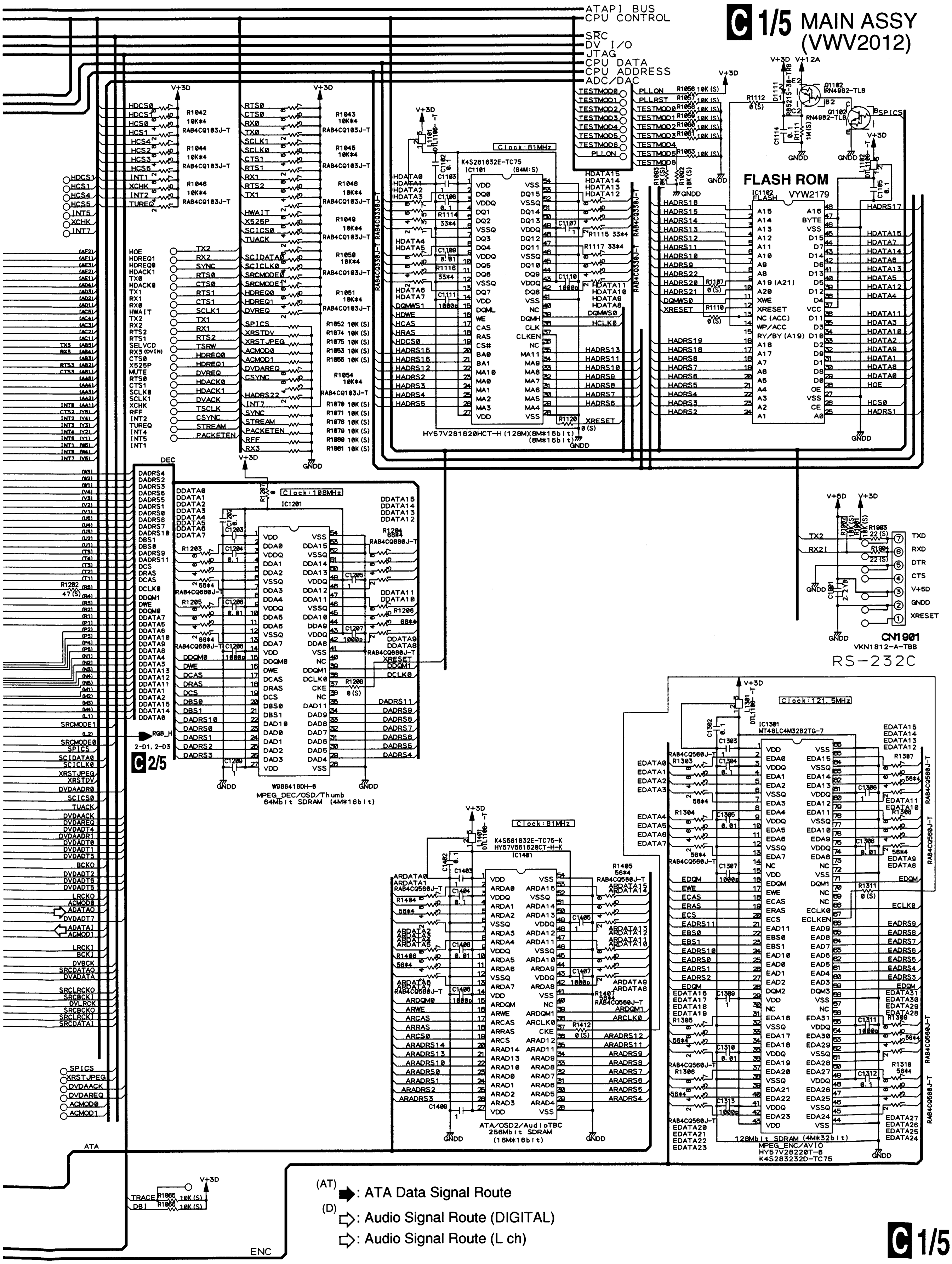
B 3/3


(T) : Video Signal Route (TUNER)
(R) : Video Signal Route (R)
(G) : Video Signal Route (G)
(B) : Video Signal Route (B)
(Y) : Video Signal Route (Y)
(CB) : Video Signal Route (CB)
(CR) : Video Signal Route (CR)
: Audio Signal Route (L ch)
SCART CONNECTOR-2
AV1 to TV (RGB)
JA501
VKB1167-
Rout
Rin
Lout
GNDA
GNDV
Lin
Bout
FUNCTION
GNDV
N-LINK
Gout
NC
GNDV
R/Cout
BLANK
GNDV
GNDV
V/Yout
V/YIN
GNDV
D522~D529, D531 : DF3A6.8FU-TBB
D530 : ***
OUTPUT
JA700
VKB1193-
S2
V2
L2
R2
Mute for Lch
Mute for Rch
B 1/3
IC500
TC7W53FU-TRB
XTHROU 1-B5
AVLIN 1-B4
AVLOUT 1-B4
1-C3 FUNC
Video Selector & Video Driver
IC701
LA73053M-K
B 2/3
CN701
VKN1283-
C 2/4
CN2001
to MAIN
CSYNC
A-Lout
A-Rout
*** : STAND BY

3.7 MAIN ASSY(1/5)


IC1001
M65673WG-A
PRISM+
C 2/5,4/5
C 2/5
C 4/5
C 2/5
C 2/5
C 1/5
C 2/5,4/5
C 4/5
C 3/5
C 3/5
to ATAPI (DVD-RW/R_DRIVE&HDD)
(AT)
V+3V
V+3D
V+PRA
GNDD
SRCXRST
INT7
SPDIFI
SPDIFO
VDDM
VDDP
VDDT
NC
TRACE
DB1
XRESET
ADCCLKO
DVAMCLKO
DVAMCLK1
DACCLKO
AMCLK1
AMCLK2
L1001
L1002
L1003
L1004
L1005
L1006
L1007
DTL1106-T

C 1/5 MAIN ASSY (VWV2012)



5
6
7
8
A
B
C
D
E
F
ATAPI BUS
CPU CONTROL
SRC
DV I/O
JTAG
CPU DATA
CPU ADDRESS
ADC/DAC
V+3D
V+12A
Q1101 RN4982-TLB
Q1102 RN4982-TLB
D1101
SPICS
FLASH ROM
IC1102 FLASH VYW2179
Clock:81MHz
K4S281632E-TC75
IC1101 (64M:S)
HY57V281620HCT-H (128M)(8M*16bit) (8M*16bit)
Clock:108MHz
IC1201
W9864160H-8
MPEG_DEC/OSD/Thumb 64Mbit SDRAM (4M*16bit)
DEC
C 2/5
RGB_H
2-D1, 2-D3
Clock:81MHz
K4S561632E-TC75-K
HY57V561620CT-H-K
IC1401
ATA/OSD2/AudioTBC 256Mbit SDRAM (16M*16bit)
Clock:121.5MHz
IC1301
MT48LC4M32B2TG-7
128Mbit SDRAM (4M*32bit)
MPEG_ENC/AVIO
HY57V28220T-8
K4S283232D-TC75
V+5D
TXD
RXD
DTR
CTS
V+5D
GNDD
XRESET
CN1901
VKN1812-A-TBB
RS-232C
ATA
ENC
TRACE
DBI
GNDD

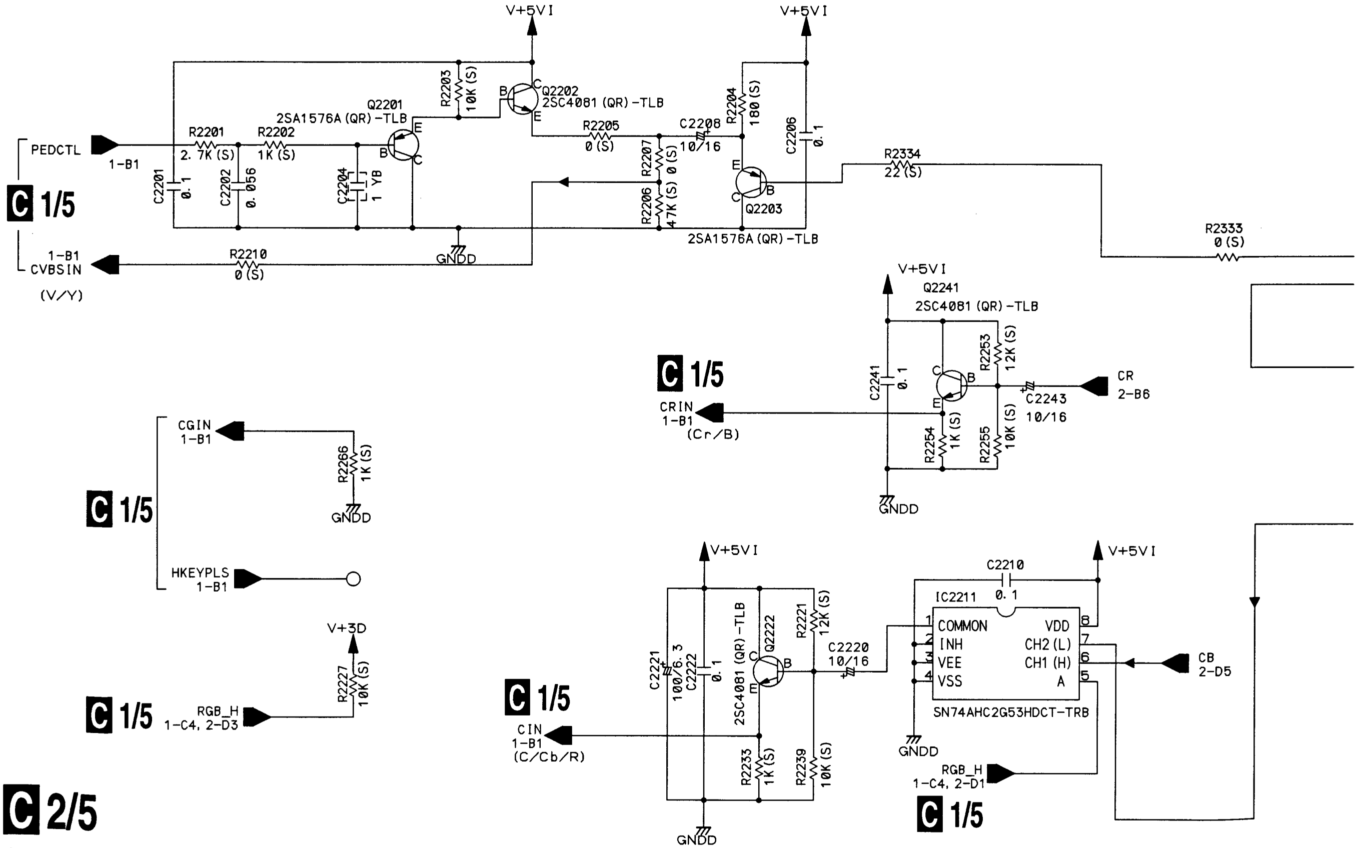
(AT) ➡: ATA Data Signal Route

(D) ⇨: Audio Signal Route (DIGITAL)

⇨: Audio Signal Route (L ch)

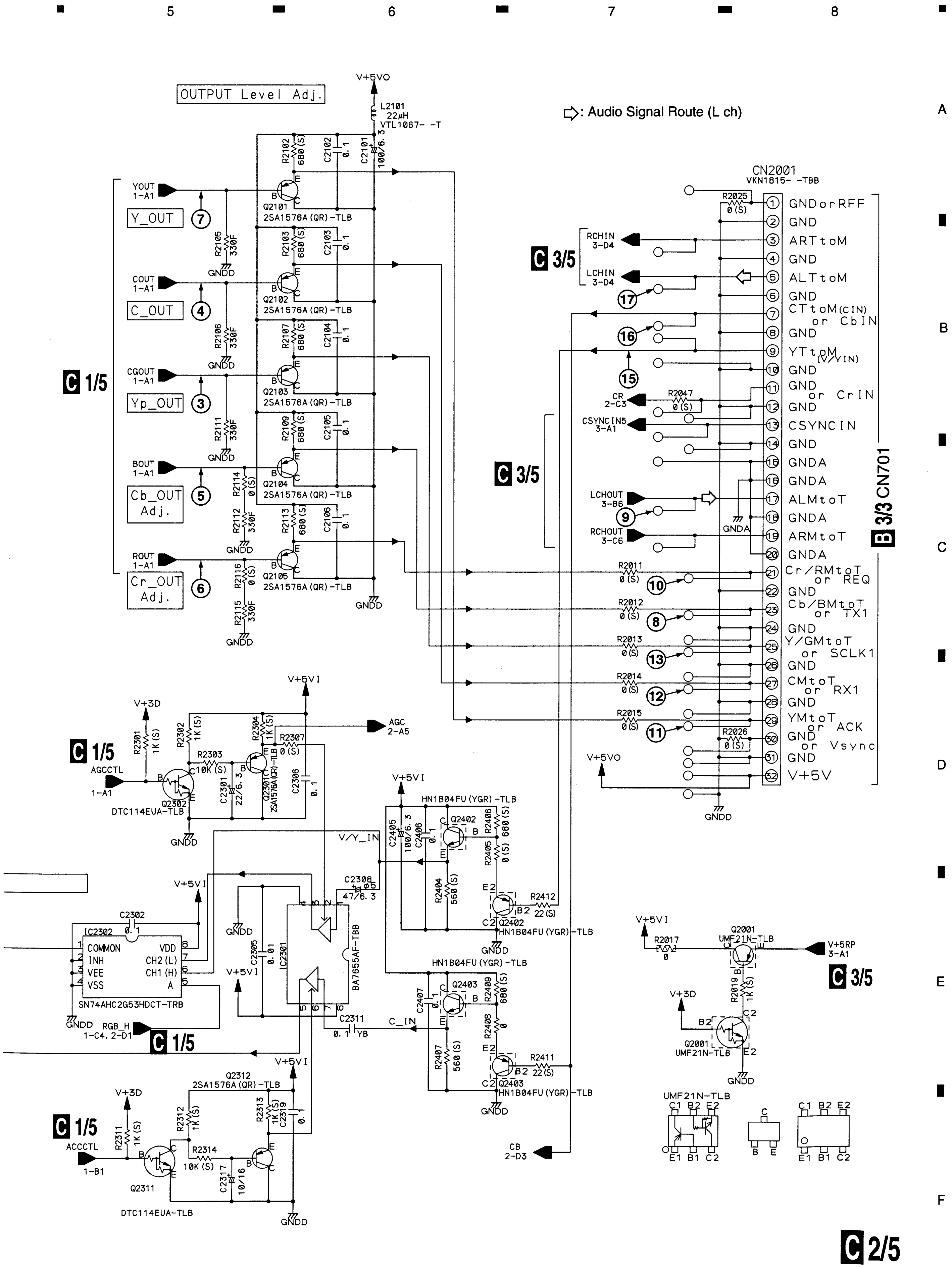
3.8 MAIN ASSY(2/5)

C 2/5 MAIN ASSY (VWV2012)

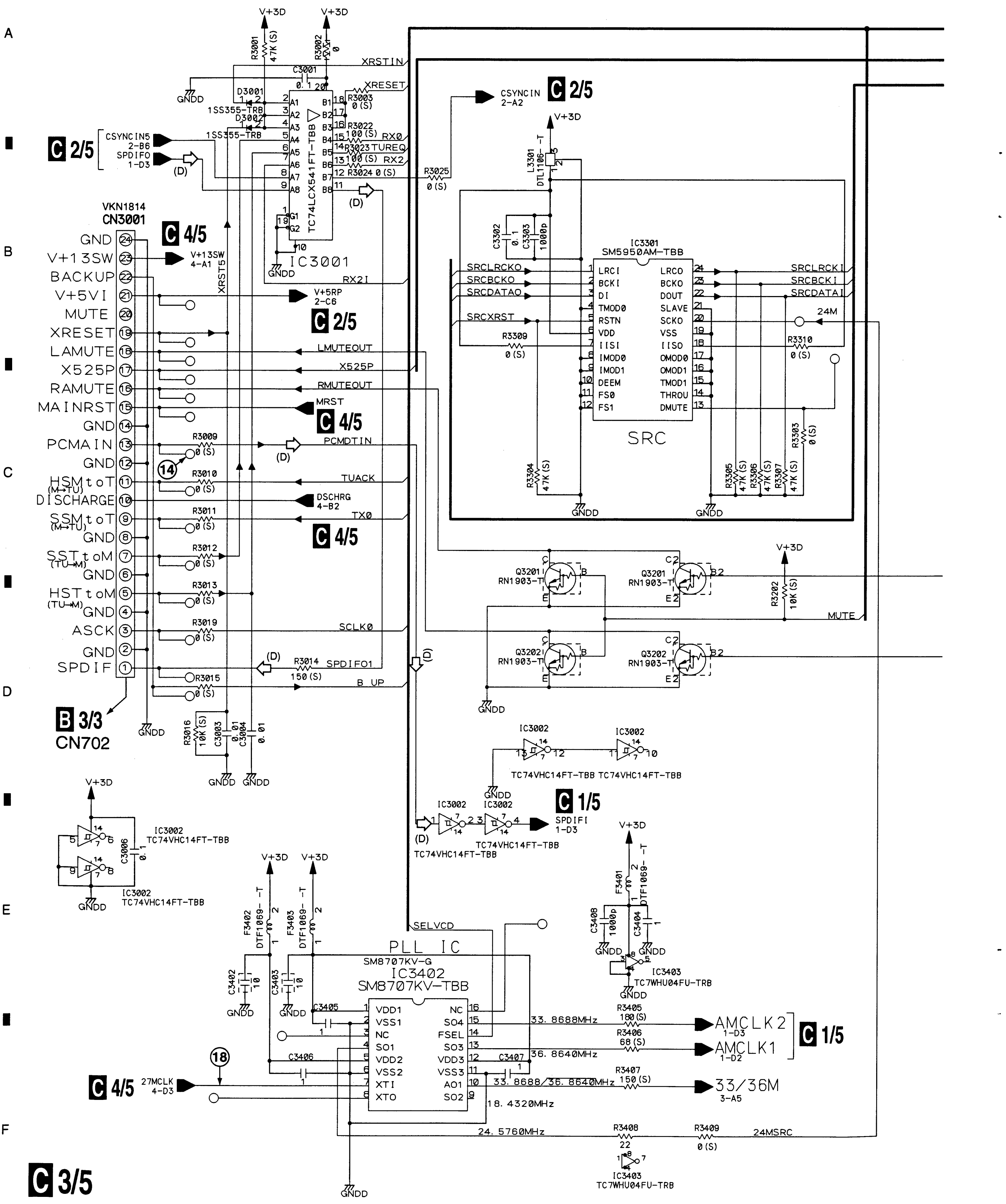


V+5VI
V+5VI
PEDCTL
1-B1
C 1/5
1-B1
CVBSIN
(V/Y)
R2201
2.7K(S)
R2202
1K(S)
C2201
0.1
C2202
0.056
C2204
L1 YB
Q2201
2SA1576A(QR)-TLB
R2203
10K(S)
Q2202
2SC4081(QR)-TLB
R2205
0(S)
R2207
0(S)
R2206
47K(S)
C2208
10/16
R2204
180(S)
C2206
0.1
Q2203
2SA1576A(QR)-TLB
R2210
0(S)
GNDD
R2334
22(S)
R2333
0(S)
V+5VI
Q2241
2SC4081(QR)-TLB
C2241
0.1
R2253
12K(S)
C2243
10/16
CR
2-B6
C 1/5
CRIN
1-B1
(Cr/B)
R2254
1K(S)
R2255
10K(S)
GNDD
C 1/5
CGIN
1-B1
R2266
1K(S)
GNDD
HKEYPLS
1-B1
V+3D
C 1/5
RGB_H
1-C4, 2-D3
R2227
10K(S)
V+5VI
C2221
100/6.3
C2222
0.1
Q2222
2SC4081(QR)-TLB
R2221
12K(S)
C2220
10/16
R2233
1K(S)
R2239
10K(S)
C 1/5
CIN
1-B1
(C/Cb/R)
GNDD
C2210
0.1
IC2211
COMMON
INH
VEE
VSS
VDD
CH2(L)
CH1(H)
A
1
2
3
4
8
7
6
5
SN74AHC2G53HDCT-TRB
V+5VI
CB
2-D5
GNDD
RGB_H
1-C4, 2-D1
C 1/5

C 2/5


5
6
7
8
A
B
C
D
E
F
OUTPUT Level Adj.
V+5VO
L2101
22μH
VTL1067- -T
⇨: Audio Signal Route (L ch)
R2102 680(S)
C2102 0.1
C2101 100/6.3
YOUT 1-A1
Y_OUT
7
Q2101
2SA1576A(QR)-TLB
R2105 330F
GNDD
R2103 680(S)
C2103 0.1
COUT 1-A1
C_OUT
4
Q2102
2SA1576A(QR)-TLB
R2106 330F
R2107 680(S)
C2104 0.1
C 1/5
CGOUT 1-A1
Yp_OUT
3
Q2103
2SA1576A(QR)-TLB
R2111 330F
R2109 680(S)
C2105 0.1
BOUT 1-A1
Cb_OUT Adj.
5
R2114 0(S)
Q2104
2SA1576A(QR)-TLB
R2112 330F
R2113 680(S)
C2106 0.1
ROUT 1-A1
Cr_OUT Adj.
6
R2116 0(S)
Q2105
2SA1576A(QR)-TLB
R2115 330F
CN2001
VKN1815- -TBB
R2025 0(S)
C 3/5
RCHIN 3-D4
LCHIN 3-D4
17
16
15
CR 2-C3
R2047 0(S)
CSYNCIN5 3-A1
C 3/5
LCHOUT 3-B6
9
RCHOUT 3-C6
GNDA
R2011 0(S)
10
R2012 0(S)
8
R2013 0(S)
13
R2014 0(S)
12
R2015 0(S)
11
R2026 0(S)
V+5VO
GNDD
1 GNDorRFF
2 GND
3 ARTtoM
4 GND
5 ALTtoM
6 GND
7 CTtoM(CIN) or CbIN
8 GND
9 YTtoM(V/YIN)
10 GND
11 GND or CrIN
12 GND
13 CSYNCIN
14 GND
15 GNDA
16 GNDA
17 ALMtoT
18 GNDA
19 ARMtoT
20 GNDA
21 Cr/RMtoT or REQ
22 GND
23 Cb/BMtoT or TX1
24 GND
25 Y/GMtoT or SCLK1
26 GND
27 CMtoT or RX1
28 GND
29 YMtoT or ACK
30 GND or Vsync
31 GND
32 V+5V
B 3/3 CN701
V+5VI
V+3D
C 1/5
AGCCTL 1-A1
R2301 1K(S)
R2302 1K(S)
R2303 10K(S)
R2304 1K(S)
R2307 0(S)
AGC 2-A5
C2301 22/6.3
Q2301 2SA1576A(QR)-TLB
C2306 0.1
Q2302
DTC114EUA-TLB
V+5VI
HN1B04FU(YGR)-TLB
Q2402
C2405 100/6.3
C2406 0.1
R2406 680(S)
R2405 0(S)
R2404 560(S)
V/Y_IN
C2308 47/6.3
R2412 22(S)
Q2402
HN1B04FU(YGR)-TLB
V+5VI
C2302 0.1
IC2302
COMMON
INH
VEE
VSS
VDD
CH2(L)
CH1(H)
A
SN74AHC2G53HDCT-TRB
C2305 0.01
IC2301
BA7655AF-TBB
V+5VI
RGB_H 1-C4, 2-D1
C 1/5
C2311 0.1 YB
C_IN
HN1B04FU(YGR)-TLB
C2407 0.1
Q2403
R2409 680(S)
R2408 0
R2407 560(S)
R2411 22(S)
Q2403
HN1B04FU(YGR)-TLB
CB 2-D3
V+5VI
Q2312
2SA1576A(QR)-TLB
V+3D
C 1/5
ACCCTL 1-B1
R2311 1K(S)
R2312 1K(S)
R2314 10K(S)
R2313 1K(S)
C2319 0.1
C2317 10/16
Q2311
DTC114EUA-TLB
V+5VI
R2017 0
Q2001
UMF21N-TLB
V+5RP 3-A1
C 3/5
R2019 1K(S)
V+3D
Q2001
UMF21N-TLB
UMF21N-TLB
C1 B2 E2
E1 B1 C2
C
B E
C1 B2 E2
E1 B1 C2
C 2/5

3.9 MAIN ASSY(3/5)

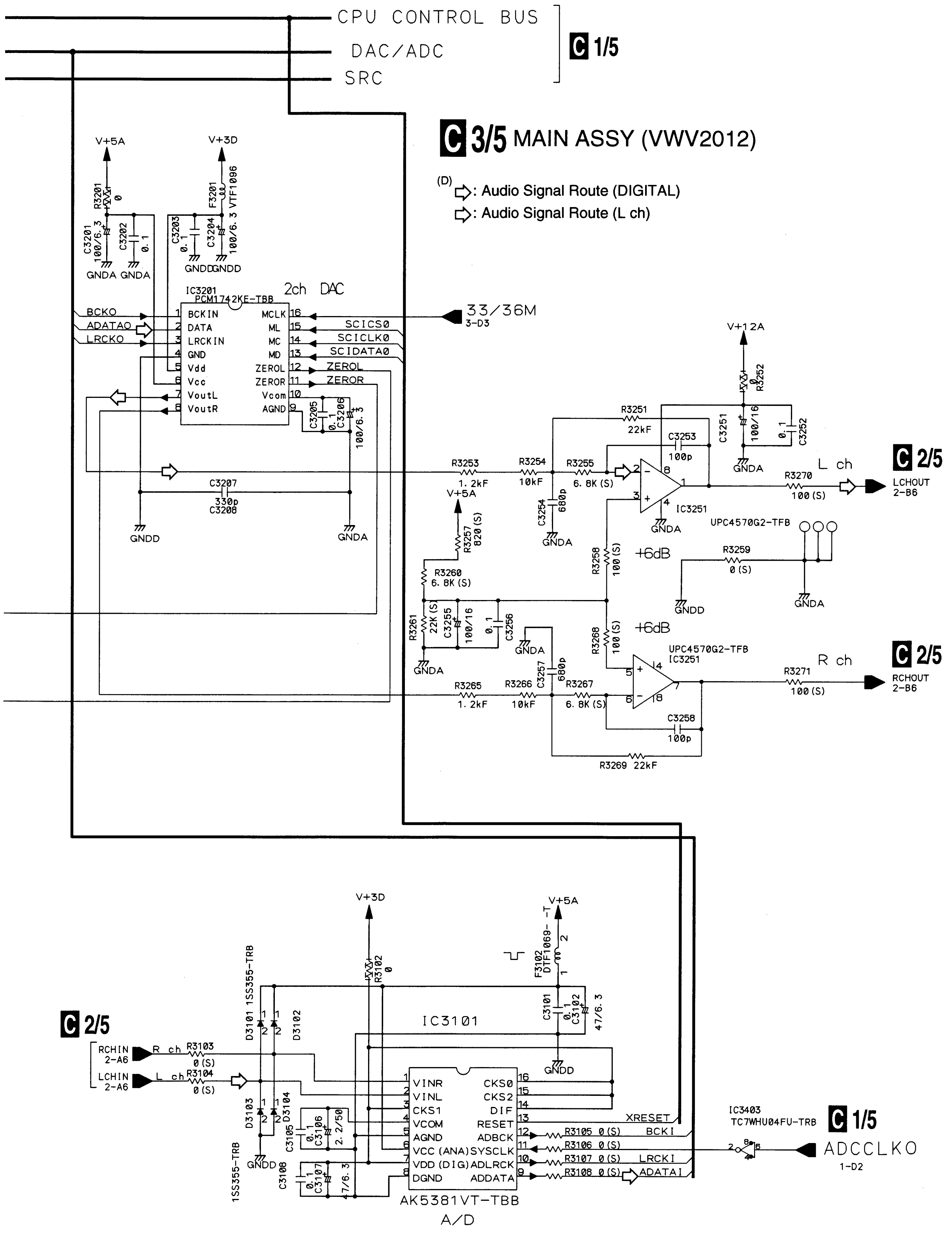


1
2
3
4
A
B
C
D
E
F
V+3D
R3001 47K(S)
R3002 0
XRSTIN
C3001 0.1
GNDD
XRESET
D3001
1SS355-TRB
D3002
1SS355-TRB
R3003 0(S)
R3022 100(S)
RX0
R3023 TUREQ
100(S)
RX2
R3024 0(S)
R3025 0(S)
TC74LCX541FT-TBB
IC3001
RX2I
C 2/5
CSYNCIN5 2-B6
SPDIFO 1-D3
(D)
CSYNCIN 2-A2
C 2/5
L3301 DTL1106-T
C3302 0.1
C3303 1000p
IC3301
SM5950AM-TBB
SRCLRCKO
SRCBCKO
SRCDATAO
SRCXRST
R3309 0(S)
LRCI
BCKI
DI
TMOD0
RSTN
VDD
IISI
IMOD0
IMOD1
DEEM
FS0
FS1
LRCO
BCKO
DOUT
SLAVE
SCKO
VSS
IISO
OMOD0
OMOD1
TMOD1
THROU
DMUTE
SRCLRCKI
SRCBCKI
SRCDATAI
24M
R3310 0(S)
R3303 0(S)
SRC
R3304 47K(S)
R3305 47K(S)
R3306 47K(S)
R3307 47K(S)
VKN1814
CN3001
GND
V+13SW
BACKUP
V+5VI
MUTE
XRESET
LAMUTE
X525P
RAMUTE
MAINRST
GND
PCMAIN
GND
HSMtoT (M→TU)
DISCHARGE
SSMtoT (M→TU)
GND
SSTtoM (TU→M)
GND
HSTtoM (TU→M)
GND
ASCK
GND
SPDIF
C 4/5
V+13SW 4-A1
XRST5
V+5RP 2-C6
C 2/5
LMUTEOUT
X525P
RMUTEOUT
MRST
C 4/5
R3009 0(S)
PCMDTIN
⑭
R3010 0(S)
TUACK
DSCHRG 4-B2
R3011 0(S)
TX0
C 4/5
R3012 0(S)
R3013 0(S)
R3019 0(S)
SCLK0
R3014 150(S)
SPDIFO1
R3015 0(S)
B UP
B 3/3
CN702
R3016 10K(S)
C3003 0.01
C3004 0.01
Q3201 RN1903-T
Q3201 RN1903-T
Q3202 RN1903-T
Q3202 RN1903-T
R3202 10K(S)
MUTE
IC3002
TC74VHC14FT-TBB
SPDIFI 1-D3
C 1/5
C3006 0.1
F3401 DTF1069-T
C3408 1000p
C3404 1
IC3403
TC7WHU04FU-TRB
F3402 DTF1069-T
F3403 DTF1069-T
C3402 10
C3403 10
SELVCD
PLL IC
SM8707KV-G
IC3402
SM8707KV-TBB
C3405 1
C3406 1
C3407 1
VDD1
VSS1
NC
SO1
VDD2
VSS2
XTI
XTO
NC
SO4
FSEL
SO3
VDD3
VSS3
AO1
SO2
33.8688MHz
36.8640MHz
33.8688/36.8640MHz
18.4320MHz
24.5760MHz
R3405 180(S)
R3406 68(S)
R3407 150(S)
R3408 22
R3409 0(S)
AMCLK2 1-D3
AMCLK1 1-D2
C 1/5
33/36M 3-A5
24MSRC
⑱
C 4/5
27MCLK 4-D3
C 3/5

C 3/5 MAIN ASSY (VWV2012)

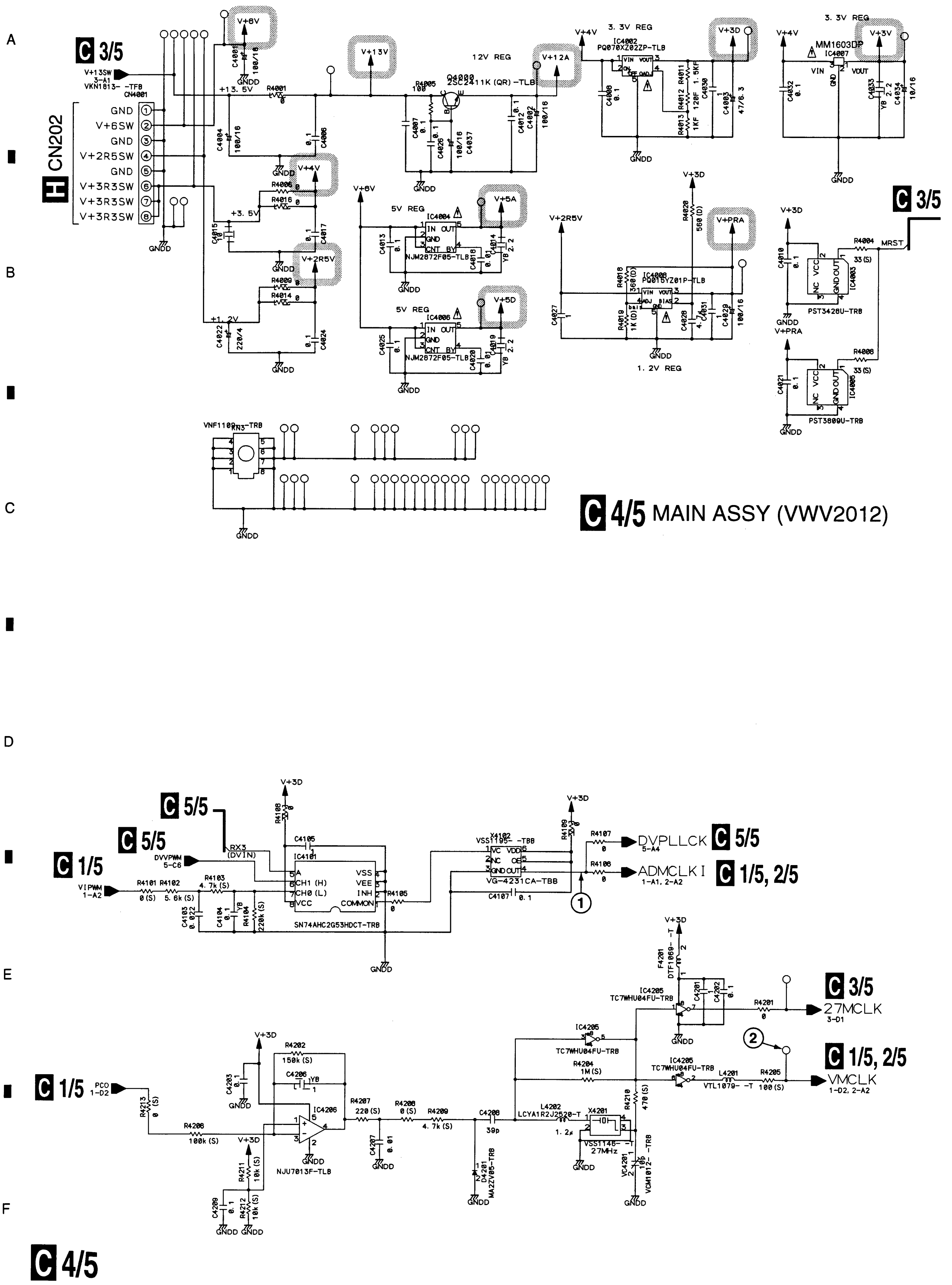
(D) ⇨: Audio Signal Route (DIGITAL)

⇨: Audio Signal Route (L ch)


CPU CONTROL BUS
DAC/ADC
SRC
C 1/5
V+5A
V+3D
R3201 0
F3201 VTF1096
C3201 100/6.3
C3202 0.1
C3203 0.1
C3204 100/6.3
GNDA GNDA
GNDD GNDD
IC3201
PCM1742KE-TBB
2ch DAC
BCKO
ADATAO
LRCKO
1 BCKIN
2 DATA
3 LRCKIN
4 GND
5 Vdd
6 Vcc
7 VoutL
8 VoutR
MCLK 16
ML 15
MC 14
MD 13
ZEROL 12
ZEROR 11
Vcom 10
AGND 9
SCICS0
SCICLK0
SCIDATA0
ZEROL
ZEROR
33/36M
3-D3
C3205 0.1
C3206 100/6.3
C3207 330p
C3208
GNDD
GNDA
V+12A
R3252 0
R3251 22kF
C3253 100p
C3251 100/16
C3252 0.1
R3253 1.2kF
R3254 10kF
R3255 6.8K (S)
C3254 680p
V+5A
R3257 820 (S)
R3260 6.8K (S)
R3261 22K (S)
C3255 100/16
C3256 0.1
IC3251
UPC4570G2-TFB
R3258 100 (S)
+6dB
R3259 0 (S)
R3268 100 (S)
+6dB
R3270 100 (S)
L ch
C 2/5
LCHOUT
2-B6
R ch
R3271 100 (S)
C 2/5
RCHOUT
2-B6
R3265 1.2kF
R3266 10kF
C3257 680p
R3267 6.8K (S)
C3258 100p
R3269 22kF
V+3D
R3102 0
V+5A
F3102 DTF1069-T
C3101 0.1
C3102 47/6.3
D3101 1SS355-TRB
D3102
D3103
D3104
1SS355-TRB
IC3101
C 2/5
RCHIN 2-A6
LCHIN 2-A6
R ch R3103 0 (S)
L ch R3104 0 (S)
C3105 0.1
C3106 2.2/50
C3108 0.1
C3107 47/6.3
1 VINR
2 VINL
3 CKS1
4 VCOM
5 AGND
6 VCC (ANA)
7 VDD (DIG)
8 DGND
CKS0 16
CKS2 15
DIF 14
RESET 13
ADBCK 12
SYSCLK 11
ADLRCK 10
ADDATA 9
AK5381VT-TBB
A/D
XRESET
R3105 0 (S) BCKI
R3106 0 (S)
R3107 0 (S) LRCKI
R3108 0 (S) ADATAI
IC3403
TC7WHU04FU-TRB
C 1/5
ADCCLKO
1-D2
GNDD
GNDA

C 3/5

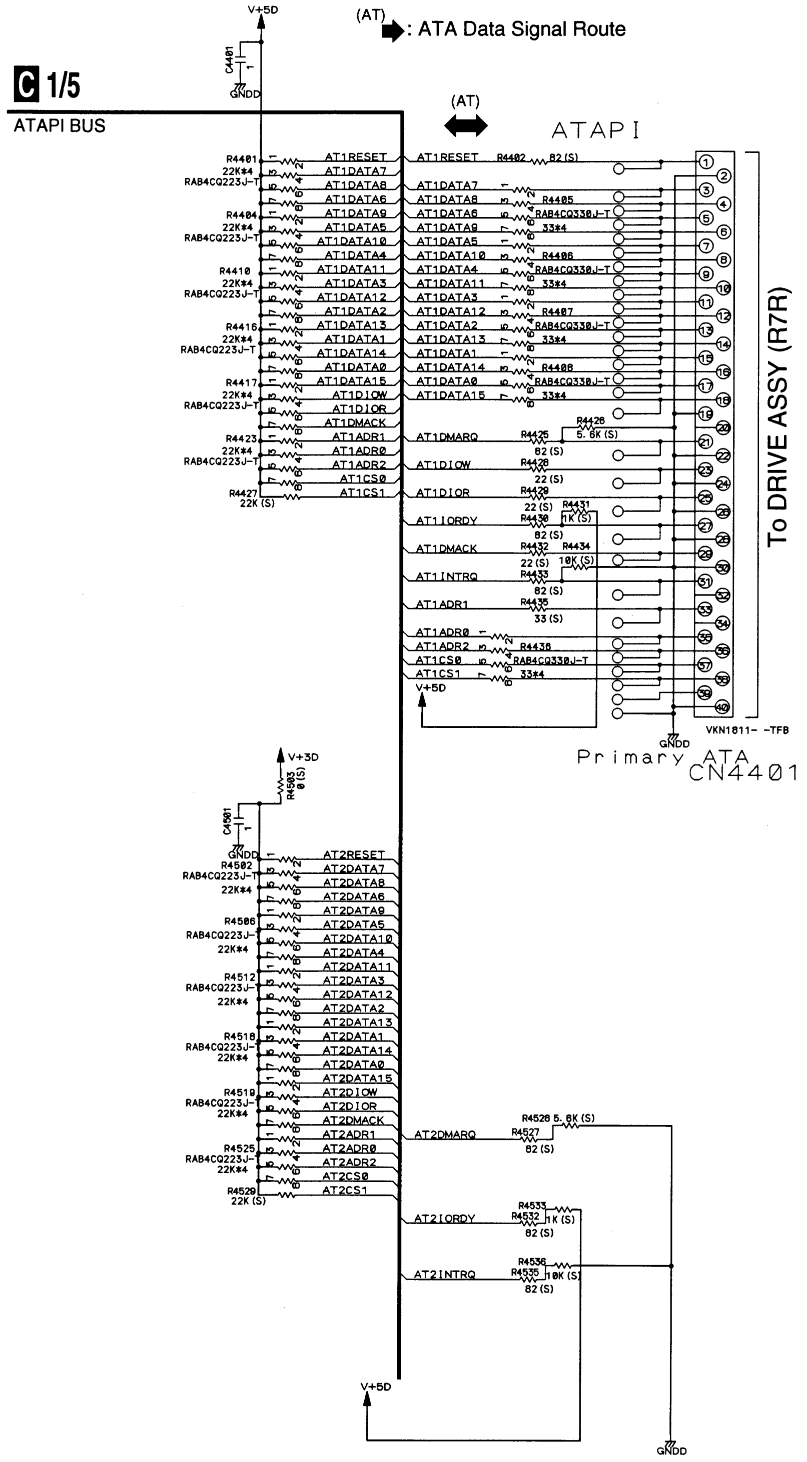
3.10 MAIN ASSY(4/5)


C 3/5
V+13SW 3-A1
VKN1813- -TFB CN4001
H CN202
GND
V+6SW
GND
V+2R5SW
GND
V+3R3SW
V+3R3SW
V+3R3SW
GNDD
V+6V
V+13V
V+4V
V+2R5V
+13.5V
+3.5V
+1.2V
R4001
R4006
R4016
R4009
R4014
C4001 100/16
C4004 100/16
C4006
C4015
C4017
C4022 220/4
C4024
12V REG
Q4000 2SC2411K (QR) -TLB
R4005
C4007
C4026
C4037 100/16
C4012
C4002 100/16
V+12A
V+4V
3.3V REG
IC4002 PQ070XZ02ZP-TLB
R4012 R4011 120F 1.5KF
R4013 1KF
C4008
C4030
C4003 47/6.3
V+3D
3.3V REG
MM1603DP IC4007
VIN VOUT
C4032
C4033 YB
C4034 10/16
V+3V
V+6V
5V REG
IC4004 NJM2872F05-TLB
C4013
C4018
C4014 YB 2.2
V+5A
5V REG
IC4006 NJM2872F05-TLB
C4025
C4020
C4019 YB 2.2
V+5D
V+2R5V
V+3D
R4020 560 (D)
V+PRA
R4018 560(D)
R4019 1K (D)
IC4008 PQ015YZ01P-TLB
C4027
C4028
C4031
C4029 100/16
1.2V REG
V+3D
C4010
R4004
MRST
IC4003
PST3420U-TRB
V+PRA
C4021
R4008
IC4005
PST3800U-TRB
C 3/5
VNF1100 RN3-TRB
C 5/5
RX3 (DVIN)
C 5/5
DVVPWM 5-C6
C 1/5
VIPWM 1-A2
R4101 R4102 0 (S) 5.6k (S)
R4103 4.7k (S)
C4103 0.022
C4104
R4104 220k (S)
V+3D
R4108
C4105
IC4101
SN74AHC2G53HDCT-TRB
R4105
GNDD
V+3D
R4109
X4102 VSS1195- -TBB
VG-4231CA-TBB
C4107 0.1
R4107 0
R4106 0
①
DVPLLCK 5-A4
C 5/5
ADMCLKI 1-A1, 2-A2
C 1/5, 2/5
V+3D
F4201 DTF1060- -T
IC4205 TC7WHU04FU-TRB
C4201
C4202
R4201 0
27MCLK 3-D1
C 3/5
②
C 1/5, 2/5
VMCLK 1-D2, 2-A2
R4205 100 (S)
L4201 VTL1070- -T
R4204 1M (S)
R4210 470 (S)
X4201 VSS1146- -T 27MHz
L4202 LCYA1R2J2520-T 1.2µ
VC4201 VCM1012- -TRB
C4208 39p
D4201 MA2ZV05-TRB
R4209 4.7k (S)
R4208 0 (S)
R4207 220 (S)
C4207 0.01
IC4206 NJU7013F-TLB
R4202 150k (S)
C4206 YB
C4203
V+3D
R4206 100k (S)
R4213 0 (S)
C 1/5 PCO 1-D2
R4211 10k (S)
R4212 10k (S)
C4209 0.1

C 4/5 MAIN ASSY (VWV2012)

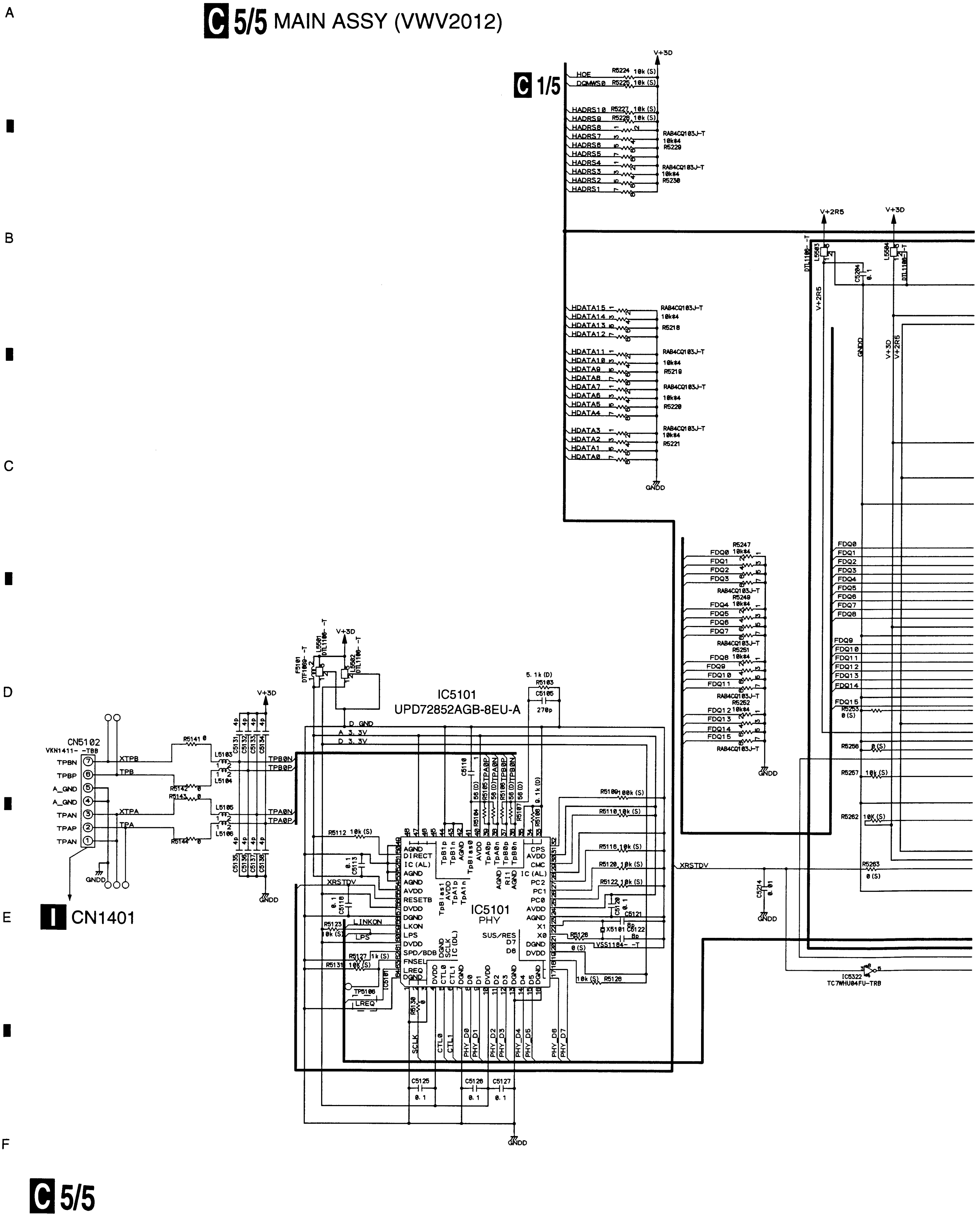
C 4/5

(AT) ➡: ATA Data Signal Route

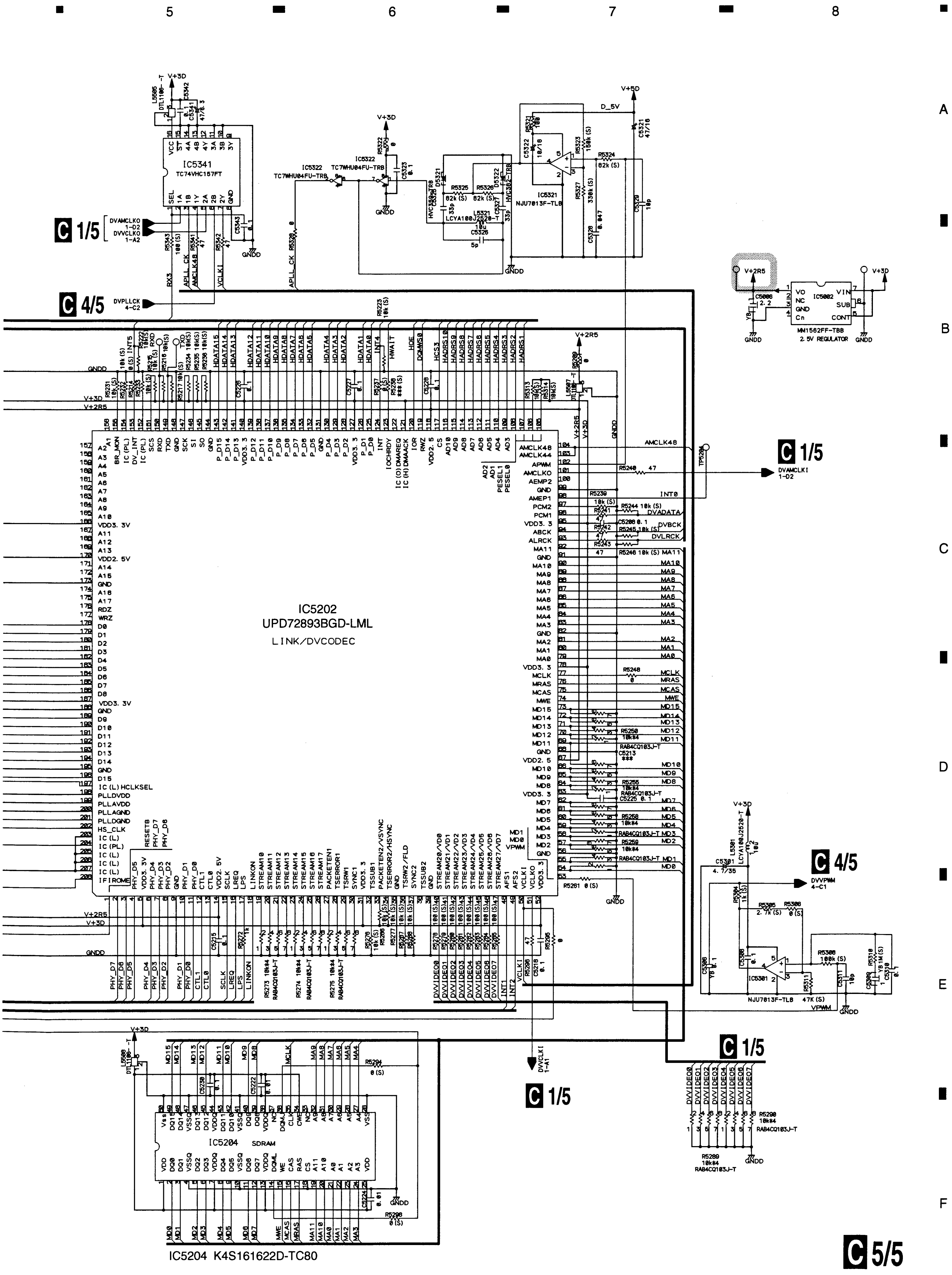

C 1/5
ATAPI BUS
V+5D
C4401
GNDD
(AT)
ATAPI
R4401 22K*4 RAB4CQ223J-T
R4404 22K*4 RAB4CQ223J-T
R4410 22K*4 RAB4CQ223J-T
R4416 22K*4 RAB4CQ223J-T
R4417 22K*4 RAB4CQ223J-T
R4423 22K*4 RAB4CQ223J-T
R4427 22K (S)
AT1RESET
AT1DATA7
AT1DATA8
AT1DATA6
AT1DATA9
AT1DATA5
AT1DATA10
AT1DATA4
AT1DATA11
AT1DATA3
AT1DATA12
AT1DATA2
AT1DATA13
AT1DATA1
AT1DATA14
AT1DATA0
AT1DATA15
AT1DIOW
AT1DIOR
AT1DMACK
AT1ADR1
AT1ADR0
AT1ADR2
AT1CS0
AT1CS1
R4402 82 (S)
R4405 RAB4CQ330J-T 33*4
R4406 RAB4CQ330J-T 33*4
R4407 RAB4CQ330J-T 33*4
R4408 RAB4CQ330J-T 33*4
AT1DMARQ
R4425 82 (S)
R4426 5.6K (S)
R4428 22 (S)
R4429 22 (S)
AT1IORDY
R4430 82 (S)
R4431 1K (S)
R4432 22 (S)
R4434 10K (S)
AT1INTRQ
R4433 82 (S)
R4435 33 (S)
R4436 RAB4CQ330J-T 33*4
To DRIVE ASSY (R7R)
VKN1811- -TFB
GNDD
Primary ATA
CN4401
V+3D
R4503 0 (S)
C4501
R4502 RAB4CQ223J-T 22K*4
R4506 RAB4CQ223J-T 22K*4
R4512 RAB4CQ223J-T 22K*4
R4518 RAB4CQ223J-T 22K*4
R4519 RAB4CQ223J-T 22K*4
R4525 RAB4CQ223J-T 22K*4
R4529 22K (S)
AT2RESET
AT2DATA7
AT2DATA8
AT2DATA6
AT2DATA9
AT2DATA5
AT2DATA10
AT2DATA4
AT2DATA11
AT2DATA3
AT2DATA12
AT2DATA2
AT2DATA13
AT2DATA1
AT2DATA14
AT2DATA0
AT2DATA15
AT2DIOW
AT2DIOR
AT2DMACK
AT2ADR1
AT2ADR0
AT2ADR2
AT2CS0
AT2CS1
AT2DMARQ
R4526 5.6K (S)
R4527 82 (S)
AT2IORDY
R4533 1K (S)
R4532 82 (S)
AT2INTRQ
R4536 10K (S)
R4535 82 (S)
V+5D
GNDD

3.11 MAIN ASSY(5/5)

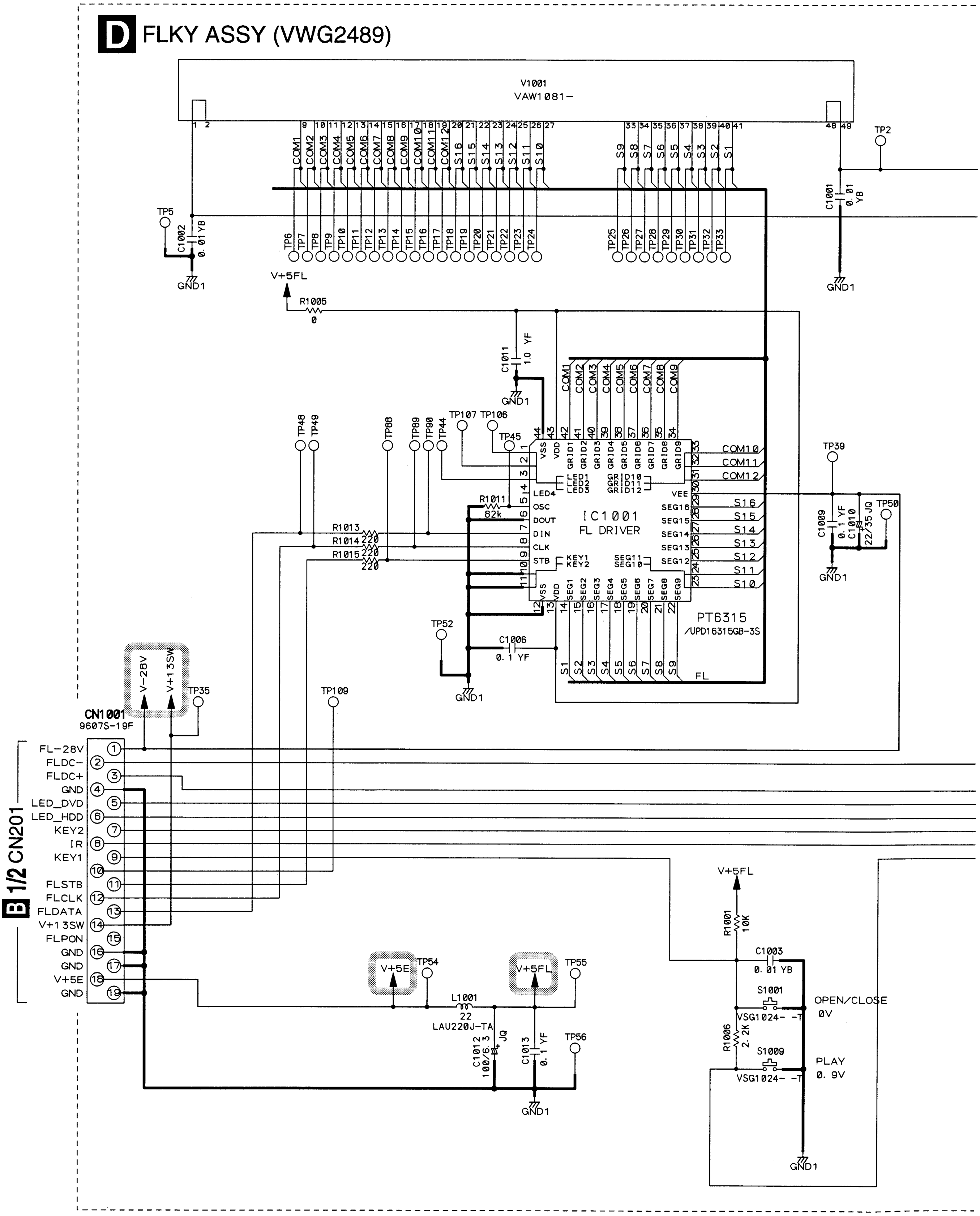
C 5/5 MAIN ASSY (VWV2012)

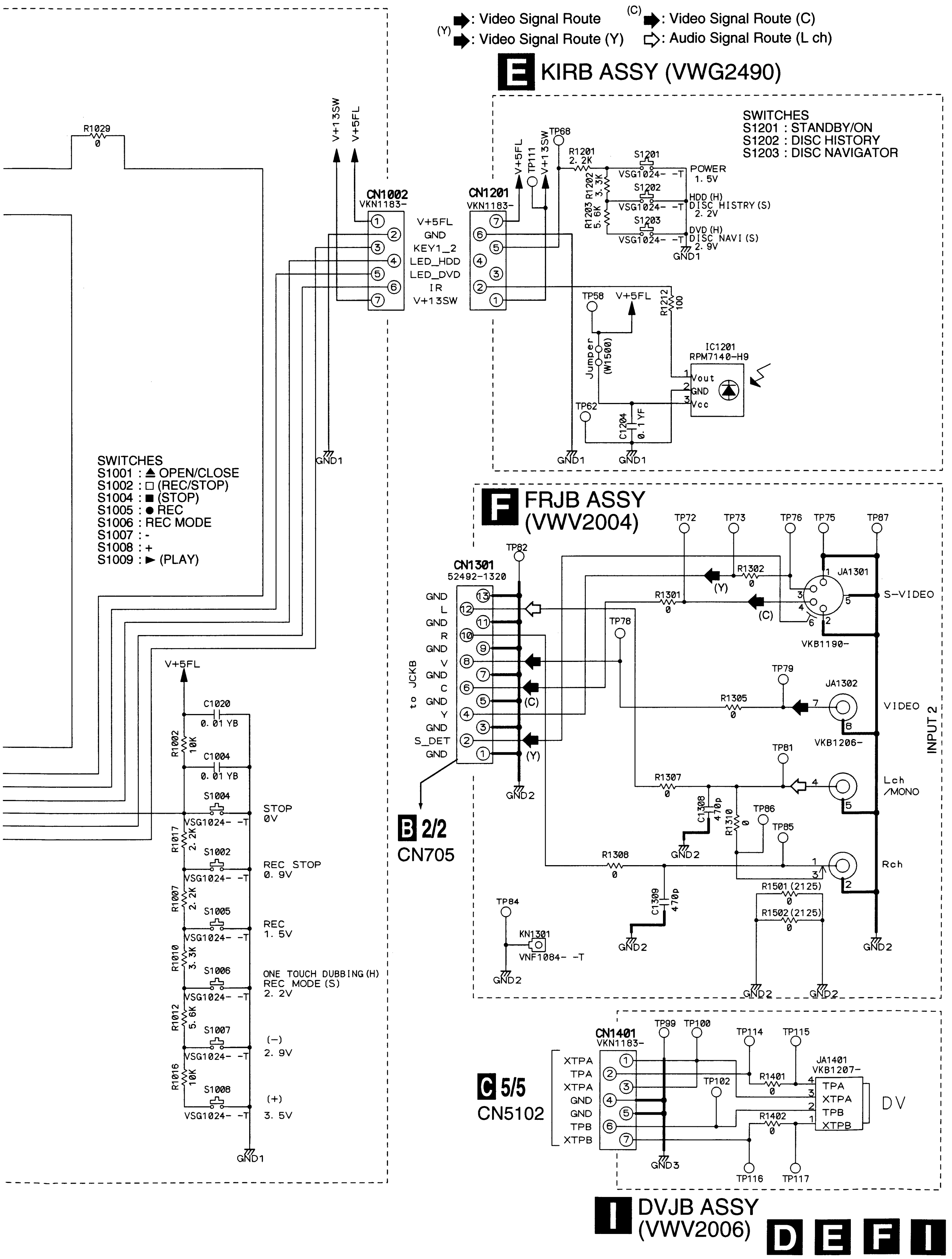

A
B
C
D
E
F
C 1/5
V+3D
HOE
DQMWS0
R5224 10k (S)
R5225 10k (S)
HADRS10
HADRS9
HADRS8
HADRS7
HADRS6
HADRS5
HADRS4
HADRS3
HADRS2
HADRS1
R5227 10k (S)
R5228 10k (S)
RAB4CQ103J-T
10k×4
R5229
R5230
V+2R5
L5503
L5504
DTL1100-T
C5204
0.1
GNDD
HDATA15
HDATA14
HDATA13
HDATA12
HDATA11
HDATA10
HDATA9
HDATA8
HDATA7
HDATA6
HDATA5
HDATA4
HDATA3
HDATA2
HDATA1
HDATA0
R5218
R5219
R5220
R5221
FDQ0
FDQ1
FDQ2
FDQ3
FDQ4
FDQ5
FDQ6
FDQ7
FDQ8
FDQ9
FDQ10
FDQ11
FDQ12
FDQ13
FDQ14
FDQ15
R5247
R5249
R5251
R5252
R5253
R5256
R5257
R5262
R5263
0 (S)
10k (S)
XRSTDV
C5214
0.01
IC5322
TC7WHU04FU-TRB
IC5101
UPD72852AGB-8EU-A
IC5101
PHY
F5101
DTF1000-T
L5501
L5502
5.1k (D)
R5103
C5105
270p
D GND
A 3.3V
D 3.3V
CN5102
VKN1411- -TBB
TPBN
TPBP
A_GND
A_GND
TPAN
TPAP
TPAN
XTPB
TPB
XTPA
TPA
R5141 0
R5142 0
R5143 0
R5144 0
L5103
L5104
L5105
L5106
C5131
C5132
C5133
C5134
C5135
C5136
C5137
C5138
4p
TPB0N
TPB0P
TPA0N
TPA0P
GNDD
I CN1401
R5112 10k (S)
R5109 100k (S)
R5110 10k (S)
R5116 10k (S)
R5120 10k (S)
R5122 10k (S)
R5126
R5128
R5123
R5127 1k (S)
R5131 10k (S)
R5130
C5110
C5113
C5118
C5120
C5121
C5122
X5101
VSS1104- -T
8p
LINKON
LPS
LREQ
TP5106
C5101
AGND
DIRECT
IC (AL)
AVDD
RESETB
DVDD
DGND
LKON
SPD/BDB
FNSEL
CPS
CMC
PC2
PC1
PC0
X1
X0
SUS/RES
D7
D6
TpB1p
TpB1n
TpBias0
TpBias1
TpA1p
TpA1n
TpA0p
TpA0n
TpB0p
TpB0n
R5104
R5105
R5106
R5107
R5108
9.1k (D)
56 (D)
SCLK
CTL0
CTL1
PHY_D0
PHY_D1
PHY_D2
PHY_D3
PHY_D4
PHY_D5
PHY_D6
PHY_D7
C5125
C5126
C5127
0.1

C 5/5

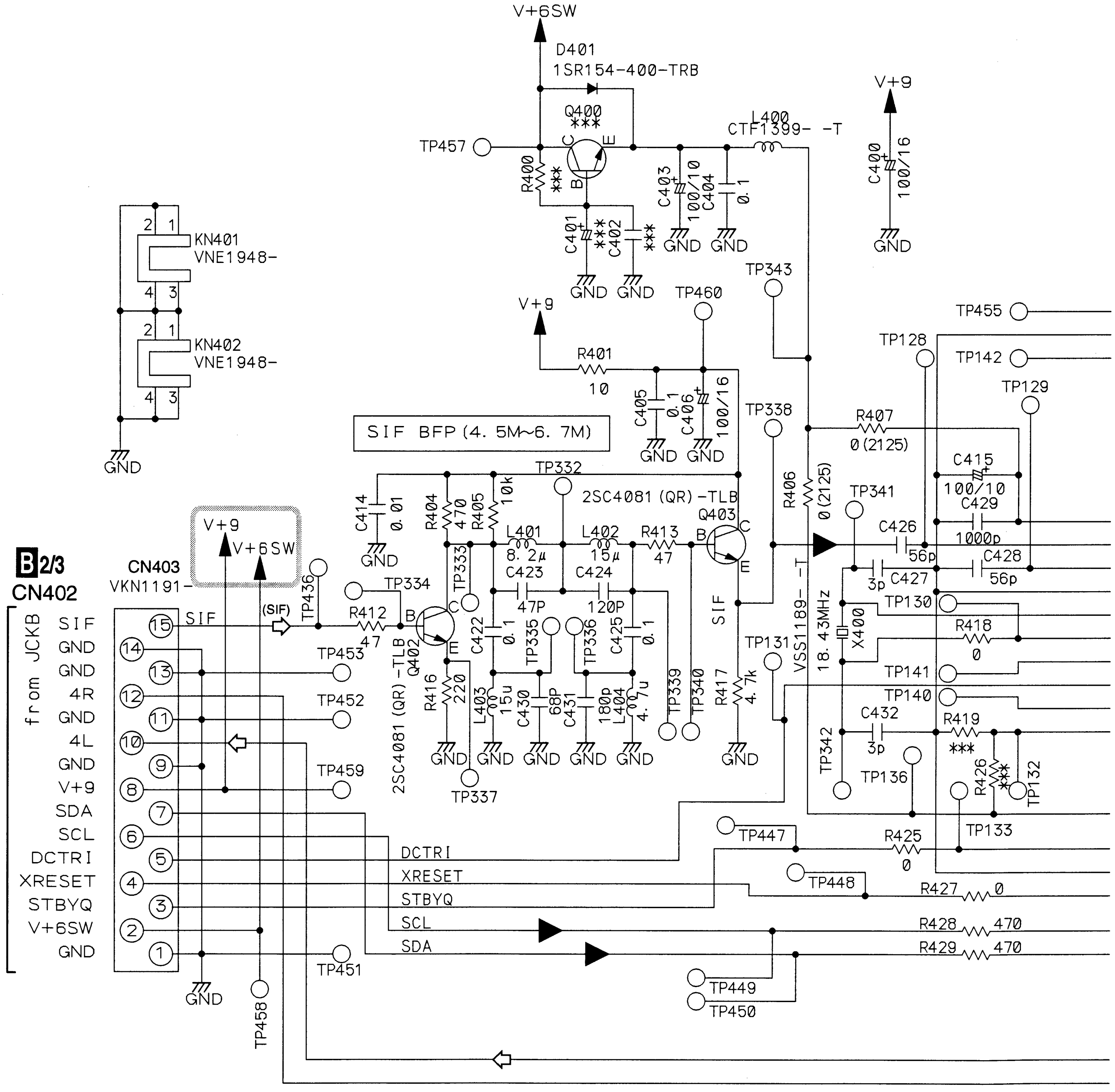

5
6
7
8
A
B
C
D
E
F
IC5341
TC74VHC157FT
C 1/5
DVAMCLKO 1-D2
DVVCLKO 1-A2
C 4/5
DVPLLCK 4-C2
IC5322
TC7WHU04FU-TRB
IC5321
NJU7013F-TL8
L5321
LCYA100J2520-T
V+5D
D_5V
V+3D
V+2R5
GNDD
IC5002
MM1562FF-TBB
2.5V REGULATOR
IC5202
UPD72893BGD-LML
LINK/DVCODEC
AMCLK48
C 1/5
DVAMCLKI 1-D2
C 4/5
DVVPWM 4-C1
IC5301
NJU7013F-TL8
VPWM
DVVCLKI 1-A1
C 1/5
C 1/5
DVVIDEO0
DVVIDEO1
DVVIDEO2
DVVIDEO3
DVVIDEO4
DVVIDEO5
DVVIDEO6
DVVIDEO7
R5290 10k*4 RAB4CQ103J-T
R5289 10k*4 RAB4CQ103J-T
IC5204 SDRAM
IC5204 K4S161622D-TC80
C 5/5

3.12 FLKY, KIRB, FRJB and DVJB ASSYS


D FLKY ASSY (VWG2489)
V1001
VAW1081-
COM1 COM2 COM3 COM4 COM5 COM6 COM7 COM8 COM9 COM10 COM11 COM12
S16 S15 S14 S13 S12 S11 S10 S9 S8 S7 S6 S5 S4 S3 S2 S1
TP2
C1001 0.01 YB
TP5
C1002 0.01 YB
GND1
TP6 TP7 TP8 TP9 TP10 TP11 TP12 TP13 TP14 TP15 TP16 TP17 TP18 TP19 TP20 TP21 TP22 TP23 TP24
TP25 TP26 TP27 TP28 TP29 TP30 TP31 TP32 TP33
V+5FL
R1005 0
C1011 1.0 YF
TP48 TP49 TP86 TP89 TP90 TP44 TP107 TP106 TP45
R1011 82k
R1013 220
R1014 220
R1015 220
IC1001
FL DRIVER
PT6315
/UPD16315GB-3S
VSS VDD GRID1 GRID2 GRID3 GRID4 GRID5 GRID6 GRID7 GRID8 GRID9
LED1 LED2 LED3 LED4 GRID10 GRID11 GRID12
OSC DOUT DIN CLK STB KEY1 KEY2
VEE SEG16 SEG15 SEG14 SEG13 SEG12 SEG11 SEG10
SEG1 SEG2 SEG3 SEG4 SEG5 SEG6 SEG7 SEG8 SEG9
FL
TP39
C1009 0.1 YF
C1010 22/35 JQ
TP50
TP52
C1006 0.1 YF
TP35 TP109
V-28V
V+13SW
CN1001
9607S-19F
B 1/2 CN201
FL-28V ①
FLDC- ②
FLDC+ ③
GND ④
LED_DVD ⑤
LED_HDD ⑥
KEY2 ⑦
IR ⑧
KEY1 ⑨
⑩
FLSTB ⑪
FLCLK ⑫
FLDATA ⑬
V+13SW ⑭
FLPON ⑮
GND ⑯
GND ⑰
V+5E ⑱
GND ⑲
V+5E
TP54
V+5FL
TP55
L1001 22 LAU220J-TA
C1012 100/6.3 JQ
C1013 0.1 YF
TP56
R1001 10K
C1003 0.01 YB
S1001 VSG1024- -T
OPEN/CLOSE 0V
R1006 2.2K
S1009 VSG1024- -T
PLAY 0.9V

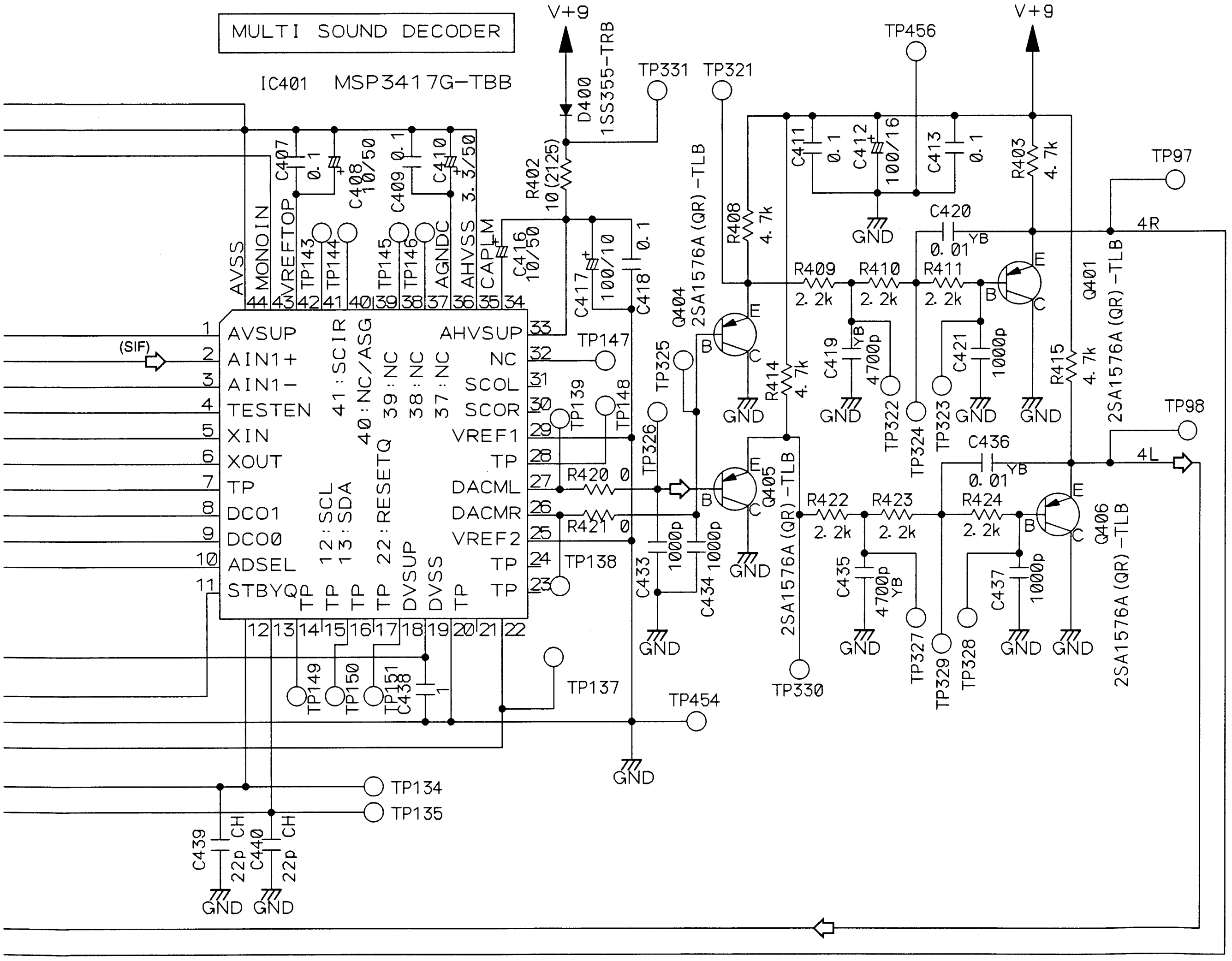

: Video Signal Route
(Y) : Video Signal Route (Y)
(C) : Video Signal Route (C)
: Audio Signal Route (L ch)
E KIRB ASSY (VWG2490)
SWITCHES
S1201 : STANDBY/ON
S1202 : DISC HISTORY
S1203 : DISC NAVIGATOR
R1029 0
V+13SW
V+5FL
CN1002 VKN1183-
V+5FL
GND
KEY1_2
LED_HDD
LED_DVD
IR
V+13SW
CN1201 VKN1183-
TP111
TP68
R1201 2.2K
R1202 3.3K
R1203 5.6K
S1201 VSG1024- -T
S1202 VSG1024- -T
S1203 VSG1024- -T
POWER 1.5V
HDD (H) DISC HISTRY (S) 2.2V
DVD (H) DISC NAVI (S) 2.9V
GND1
TP58
R1212 100
Jumper (W1500)
IC1201 RPM7140-H9
Vout
GND
Vcc
TP62
C1204 0.1 YF
GND1
SWITCHES
S1001 : ▲ OPEN/CLOSE
S1002 : □ (REC/STOP)
S1004 : ■ (STOP)
S1005 : ● REC
S1006 : REC MODE
S1007 : -
S1008 : +
S1009 : ► (PLAY)
C1020 0.01 YB
R1002 10K
C1004 0.01 YB
S1004 VSG1024- -T STOP 0V
R1017 2.2K
S1002 VSG1024- -T REC STOP 0.9V
R1007 2.2K
S1005 VSG1024- -T REC 1.5V
R1010 3.3K
S1006 VSG1024- -T ONE TOUCH DUBBING (H) REC MODE (S) 2.2V
R1012 5.6K
S1007 VSG1024- -T (-) 2.9V
R1016 10K
S1008 VSG1024- -T (+) 3.5V
GND1
F FRJB ASSY (VWV2004)
TP72 TP73 TP76 TP75 TP87 TP82
CN1301 52492-1320
GND L GND R GND V GND C GND Y GND S_DET GND
to JCKB
B 2/2 CN705
R1302 0
R1301 0
JA1301 S-VIDEO VKB1190-
TP78 TP79
R1305 0
JA1302 VIDEO VKB1206-
INPUT 2
TP81
R1307 0
Lch /MONO
C1308 470p
R1310 0
TP86 TP85
R1308 0
Rch
C1309 470p
R1501 (2125) 0
R1502 (2125) 0
TP84
KN1301 VNF1084- -T
GND2
CN1401 VKN1183-
TP99 TP100 TP114 TP115
XTPA TPA XTPA GND GND TPB XTPB
C 5/5 CN5102
TP102
R1401 0
R1402 0
JA1401 VKB1207-
TPA XTPA TPB XTPB
DV
GND3
TP116 TP117
I DVJB ASSY (VWV2006)
D E F I

3.13 SDEB ASSY


V+6SW
D401
1SR154-400-TRB
Q400
***
TP457
R400
***
C403
100/10
C404
0.1
L400
CTF1399- -T
V+9
C400
100/16
GND
C401
***
C402
***
GND GND
GND GND
TP343
TP460
V+9
R401
10
C405
0.1
C406
100/16
GND GND
TP338
SIF BFP (4. 5M~6. 7M)
KN401
VNE1948-
KN402
VNE1948-
GND
TP455
TP128
TP142
TP129
R407
0 (2125)
C415
100/10
C429
1000p
C426
56p
C428
56p
C427
3p
TP341
R406
0 (2125)
TP332
2SC4081 (QR) -TLB
Q403
C414
0.01
R404
470
R405
10k
GND
L401
8.2μ
L402
15μ
R413
47
C423
47P
C424
120P
TP333
TP334
TP436
R412
47
Q402
2SC4081 (QR) -TLB
C422
0.1
TP335
TP336
C425
0.1
TP339
TP340
R417
4.7k
SIF
VSS1189- -T
18.43MHz
X400
TP130
R418
0
TP131
TP141
TP140
C432
3p
R419
***
R426
***
TP132
TP136
TP342
TP133
R416
220
L403
15u
C430
68P
C431
180p
L404
4.7u
GND GND GND GND GND GND
TP337
TP453
TP452
TP459
B 2/3
CN402
CN403
VKN1191-
V+9
V+6SW
(SIF)
from JCKB
SIF 15
GND 14
GND 13
4R 12
GND 11
4L 10
GND 9
V+9 8
SDA 7
SCL 6
DCTRI 5
XRESET 4
STBYQ 3
V+6SW 2
GND 1
TP451
GND
TP458
TP447
R425
0
TP448
R427 0
DCTRI
XRESET
STBYQ
SCL
SDA
R428 470
R429 470
TP449
TP450

G SDEB ASSY (VWV2033)

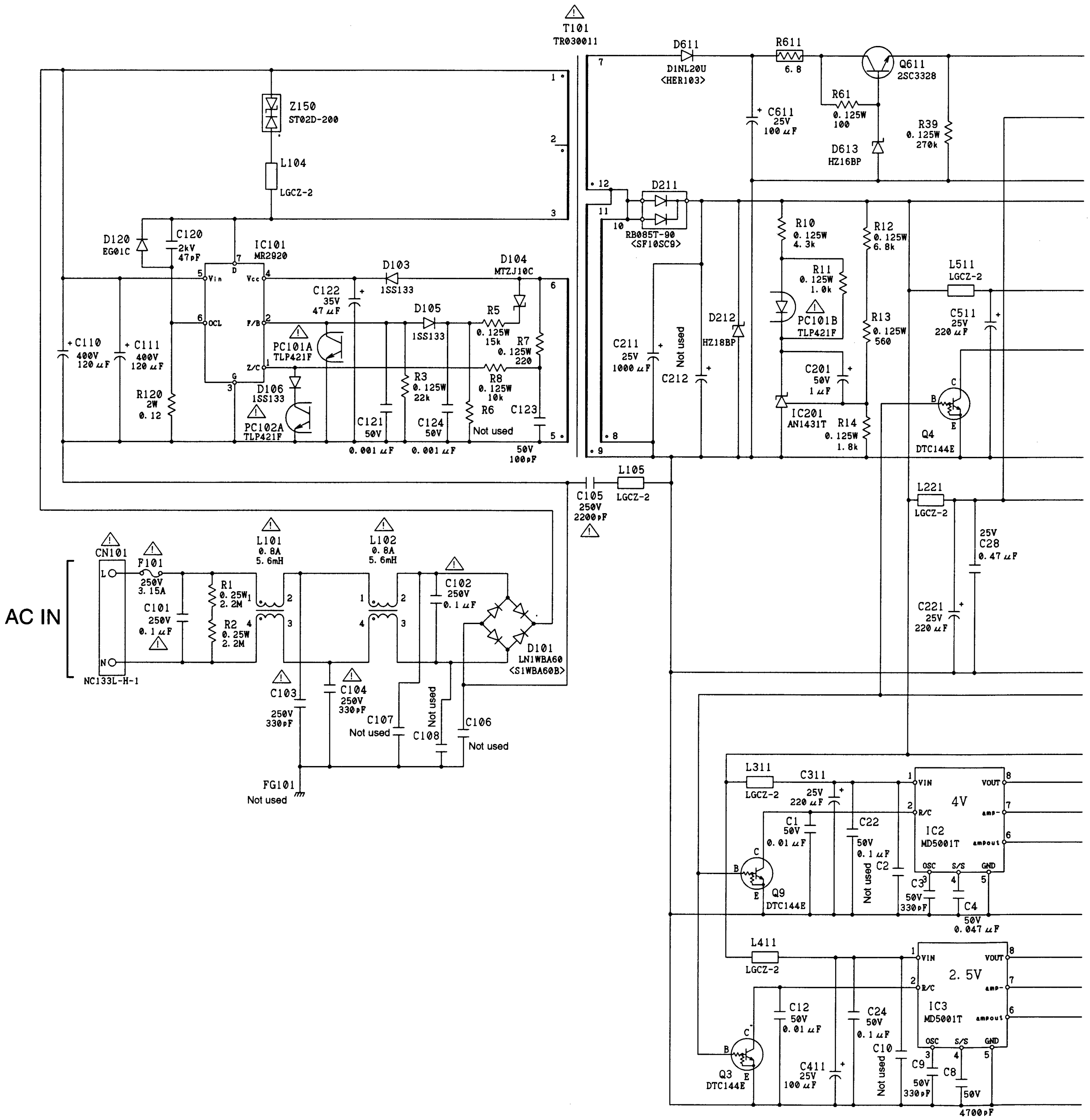
(SIF) ⇨ : SIF Signal Route (TUNER)
⇨ : AUDIO Signal Route (L ch)


MULTI SOUND DECODER
IC401 MSP3417G-TBB
AVSS
MONOIN
VREFTOP
TP143
TP144
TP145
TP146
AGNDC
AHVSS
CAPLM
44 43 42 41 40 39 38 37 36 35 34
1 AVSUP
(SIF) 2 AIN1+
3 AIN1−
4 TESTEN
5 XIN
6 XOUT
7 TP
8 DCO1
9 DCO0
10 ADSEL
11 STBYQ
41:SCIR
40:NC/ASG
39:NC
38:NC
37:NC
12:SCL
13:SDA
22:RESETQ
TP TP TP TP DVSUP DVSS TP
12 13 14 15 16 17 18 19 20 21 22
AHVSUP 33
NC 32
SCOL 31
SCOR 30
VREF1 29
TP 28
DACML 27
DACMR 26
VREF2 25
TP 24
TP 23
C407 0.1
C408 10/50
C409 0.1
C410 3.3/50
C416 10/50
C417 100/10
C418 0.1
V+9
D400 1SS355-TRB
R402 10(2125)
TP331
TP321
TP147
TP139
TP148
TP138
TP325
TP326
R420 0
R421 0
C433 1000p
C434 1000p
Q404 2SA1576A(QR)-TLB
Q405 2SA1576A(QR)-TLB
R408 4.7k
R414 4.7k
C411 0.1
C412 100/16
C413 0.1
TP456
V+9
R403 4.7k
C420 0.01 YB
R409 2.2k
R410 2.2k
R411 2.2k
C419 YB 4700p
C421 1000p
Q401 2SA1576A(QR)-TLB
R415 4.7k
TP97
4R
TP322
TP324
TP323
TP98
C436 0.01 YB
4L
R422 2.2k
R423 2.2k
R424 2.2k
C435 4700p YB
C437 1000p
Q406 2SA1576A(QR)-TLB
TP330
TP327
TP329
TP328
TP149
TP150
TP151
C438 1
TP137
TP454
TP134
TP135
C439 22p CH
C440 22p CH
E B C
GND

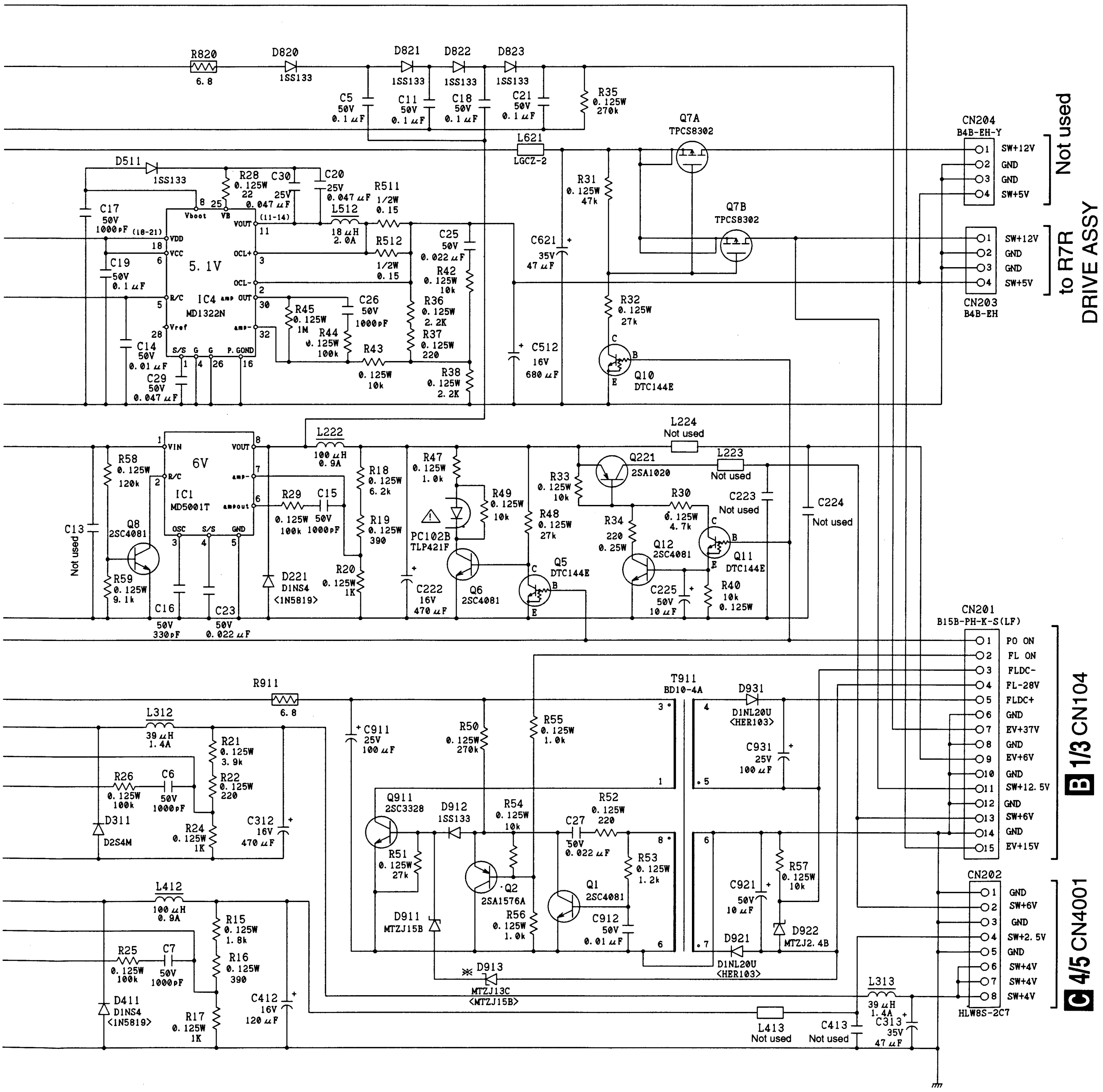
*** : STAND BY

3.14 POWER SUPPLY UNIT

H POWER SUPPLY UNIT (VWR1381)


T101
TR030011
D611
D1NL20U
<HER103>
R611
6.8
Q611
2SC3328
C611
25V
100 µF
R61
0.125W
100
D613
HZ16BP
R39
0.125W
270k
Z150
ST02D-200
L104
LGCZ-2
D211
RB085T-90
<SF10SC9>
D120
EG01C
C120
2kV
47pF
IC101
MR2920
Vin
OCL
Vcc
F/B
Z/C
G
D
D103
1SS133
D104
MTZJ10C
C122
35V
47 µF
D105
1SS133
R5
0.125W
15k
R7
0.125W
220
PC101A
TLP421F
C110
400V
120 µF
C111
400V
120 µF
R120
2W
0.12
R3
0.125W
22k
R8
0.125W
10k
R6
Not used
C123
50V
100pF
D106
1SS133
PC102A
TLP421F
C121
50V
0.001 µF
C124
50V
0.001 µF
C211
25V
1000 µF
Not used
C212
D212
HZ18BP
R10
0.125W
4.3k
R11
0.125W
1.0k
PC101B
TLP421F
R12
0.125W
6.8k
R13
0.125W
560
C201
50V
1 µF
IC201
AN1431T
R14
0.125W
1.8k
L511
LGCZ-2
C511
25V
220 µF
Q4
DTC144E
C105
250V
2200pF
L105
LGCZ-2
L221
LGCZ-2
C28
25V
0.47 µF
C221
25V
220 µF
AC IN
CN101
NC133L-H-1
F101
250V
3.15A
C101
250V
0.1 µF
R1
0.25W
2.2M
R2
0.25W
2.2M
L101
0.8A
5.6mH
L102
0.8A
5.6mH
C102
250V
0.1 µF
D101
LN1WBA60
<S1WBA60B>
C103
250V
330pF
C104
250V
330pF
C107
Not used
C108
Not used
C106
Not used
FG101
Not used
L311
LGCZ-2
C311
25V
220 µF
C1
50V
0.01 µF
C22
50V
0.1 µF
C2
Not used
Q9
DTC144E
IC2
MD5001T
4V
VIN
VOUT
R/C
amp-
ampout
OSC
S/S
GND
C3
50V
330pF
C4
50V
0.047 µF
L411
LGCZ-2
C12
50V
0.01 µF
C24
50V
0.1 µF
C10
Not used
C411
25V
100 µF
Q3
DTC144E
IC3
MD5001T
2.5V
C9
50V
330pF
C8
50V
4700pF

Note : No individual parts replacement for repair is accepted by Model Supplier due to the safety reasons.
Replace whole ASSY.


R820
6.8
D820
1SS133
D821
D822
D823
1SS133
1SS133
1SS133
C5
50V
0.1μF
C11
50V
0.1μF
C18
50V
0.1μF
C21
50V
0.1μF
R35
0.125W
270k
Q7A
TPCS8302
L621
LGCZ-2
CN204
B4B-EH-Y
SW+12V
GND
GND
SW+5V
Not used
D511
1SS133
R28
0.125W
22
C30
25V
0.047μF
C20
25V
0.047μF
R511
1/2W
0.15
L512
18μH
2.0A
C17
50V
1000pF
R31
0.125W
47k
Q7B
TPCS8302
C19
50V
0.1μF
5.1V
IC4
MD1322N
Vboot
VB
VOUT
VDD
VCC
OCL+
OCL-
R/C
amp OUT
amp-
Vref
S/S
G
P.GOND
R512
1/2W
0.15
C25
50V
0.022μF
R42
0.125W
10k
C621
35V
47μF
CN203
B4B-EH
to R7R
DRIVE ASSY
R32
0.125W
27k
C14
50V
0.01μF
C29
50V
0.047μF
R45
0.125W
1M
R44
0.125W
100k
C26
50V
1000pF
R36
0.125W
2.2K
R37
0.125W
220
R43
0.125W
10k
R38
0.125W
2.2K
C512
16V
680μF
Q10
DTC144E
L224
Not used
L222
100μH
0.9A
R58
0.125W
120k
6V
IC1
MD5001T
VIN
VOUT
R/C
amp-
ampout
OSC
S/S
GND
C13
Not used
Q8
2SC4081
R59
0.125W
9.1k
C16
50V
330pF
C23
50V
0.022μF
R29
0.125W
100k
C15
50V
1000pF
D221
D1NS4
<1N5819>
R18
0.125W
6.2k
R19
0.125W
390
R20
0.125W
1K
R47
0.125W
1.0k
PC102B
TLP421F
C222
16V
470μF
Q6
2SC4081
R49
0.125W
10k
R48
0.125W
27k
Q5
DTC144E
R33
0.125W
10k
Q221
2SA1020
L223
Not used
C223
Not used
C224
Not used
R30
0.125W
4.7k
R34
220
0.25W
Q12
2SC4081
Q11
DTC144E
C225
50V
10μF
R40
10k
0.125W
CN201
B15B-PH-K-S(LF)
PO ON
FL ON
FLDC-
FL-28V
FLDC+
GND
EV+37V
GND
EV+6V
GND
SW+12.5V
GND
SW+6V
GND
EV+15V
B 1/3 CN104
R911
6.8
T911
BD10-4A
D931
D1NL20U
<HER103>
C931
25V
100μF
L312
39μH
1.4A
R21
0.125W
3.9k
R26
0.125W
100k
C6
50V
1000pF
R22
0.125W
220
D311
D2S4M
R24
0.125W
1K
C312
16V
470μF
C911
25V
100μF
R50
0.125W
270k
R55
0.125W
1.0k
Q911
2SC3328
D912
1SS133
R54
0.125W
10k
C27
50V
0.022μF
R52
0.125W
220
R53
0.125W
1.2k
R51
0.125W
27k
Q2
2SA1576A
Q1
2SC4081
C921
50V
10μF
R57
0.125W
10k
D922
MTZJ2.4B
D921
D1NL20U
<HER103>
D911
MTZJ15B
R56
0.125W
1.0k
C912
50V
0.01μF
D913
MTZJ13C
<MTZJ15B>
L412
100μH
0.9A
R15
0.125W
1.8k
R25
0.125W
100k
C7
50V
1000pF
R16
0.125W
390
D411
D1NS4
<1N5819>
R17
0.125W
1K
C412
16V
120μF
L413
Not used
C413
Not used
L313
39μH
1.4A
C313
35V
47μF
CN202
HLW8S-2C7
GND
SW+6V
GND
SW+2.5V
GND
SW+4V
SW+4V
SW+4V
C 4/5 CN4001

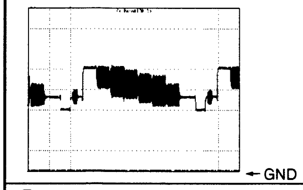
3.15 WAVE FORMS

Note : The encircled numbers denote measuring point in the schematic diagram.

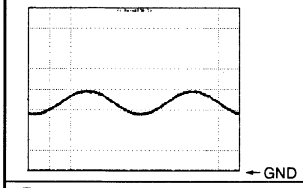
B JCKB ASSY

Measurement condition ;
No.1, No.19 to No.31 : 75% Color-bar
No.3, No.16 : 75% Color-bar, APX disc 1-24
No.2, No.32, No.33 : 1kHz, 2Vrms
No.17, No.18 : 1kHz, 2Vrms, APX disc 1-1

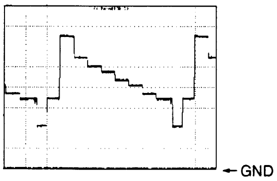
① **CN401-pin 3 (UVOUT)**
(Function : Tuner 2 ch)
V: 500mV/div. H: 10μsec/div.



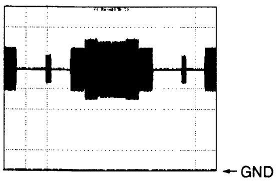
② **CN402-pin 6 (4L)**
(Function : Tuner 2 ch)
V: 1V/div. H: 200μsec/div.



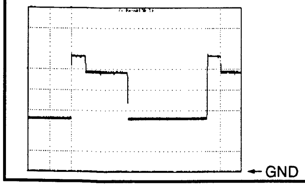
③ **IC501-pin 25 (V/Yout)**
(Function : DVD play)
V: 500mV/div. H: 10μsec/div.



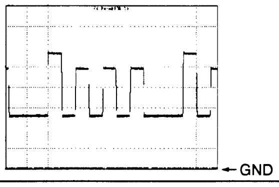
④ **IC701-pin 60 (R/Cout)**
(Function : DVD play)
V: 500mV/div. H: 10μsec/div.



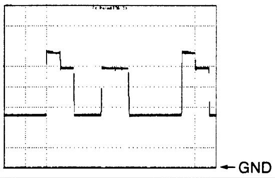
⑤ **CN701-pin 58 (G)**
(Function : DVD play)
V: 500mV/div. H: 10μsec/div.



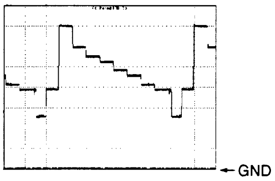
⑥ **CN701-pin 56 (B)**
(Function : DVD play)
V: 500mV/div. H: 10μsec/div.



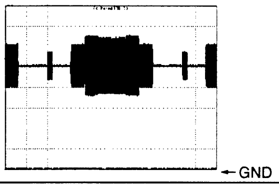
⑦ **IC701-pin 60 (R/C)**
(Function : DVD play)
V: 500mV/div. H: 10μsec/div.



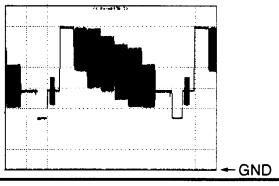
⑧ **IC701-pin 63 (YOUT2)**
(Function : DVD play)
V: 500mV/div. H: 10μsec/div.



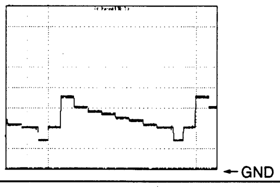
⑨ **IC701-pin 65 (COUT2)**
(Function : DVD play)
V: 500mV/div. H: 10μsec/div.



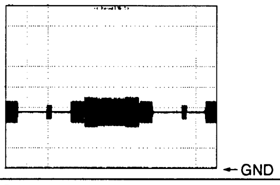
⑩ **IC701-pin 68 (CVOUT2)**
(Function : DVD play)
V: 500mV/div. H: 10μsec/div.



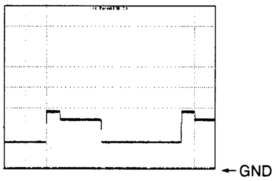
⑪ **CN701-pin 29 (YOUT)**
(Function : DVD play)
V: 500mV/div. H: 10μsec/div.



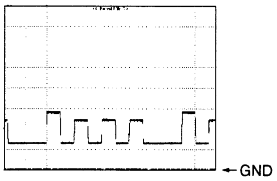
⑫ **CN701-pin 27 (COUT)**
(Function : DVD play)
V: 500mV/div. H: 10μsec/div.



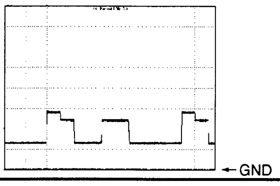
⑬ **CN701-pin 25 (GOUT)**
(Function : DVD play)
V: 500mV/div. H: 10μsec/div.



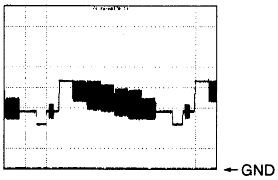
⑭ **CN701-pin 23 (BOUT)**
(Function : DVD play)
V: 500mV/div. H: 10μsec/div.



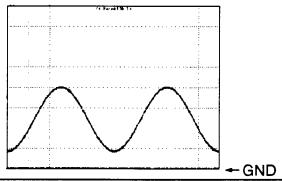
⑮ **CN701-pin 21 (ROUT)**
(Function : DVD play)
V: 500mV/div. H: 10μsec/div.



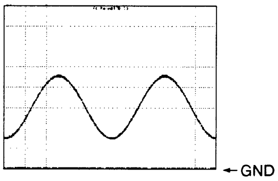
⑯ **IC503-pin 2 (YCMIX)**
(Function : DVD play)
V: 500mV/div. H: 10μsec/div.



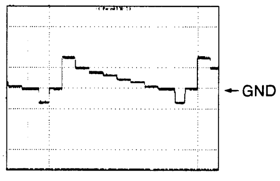
⑰ **IC501-pin 42 (Lout)**
(Function : DVD play)
V: 2V/div. H: 200μsec/div.



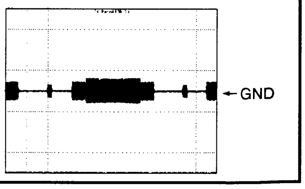
⑱ **CN701-pin 17 (ALMtoT)**
(Function : DVD play)
V: 2V/div. H: 200μsec/div.



⑲ **JA502-pin 20 (V/Yin)**
(Function : LINE1 IN)
V: 500mV/div. H: 10μsec/div.

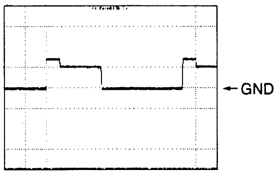


⑳ **JA502-pin 15 (R/Cin)**
(Function : LINE1 IN)
V: 500mV/div. H: 10μsec/div.

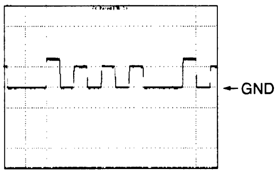


B JCKB ASSY

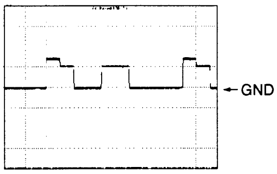
㉑ **JA502-pin 11 (Gin)**
(Function : LINE1 IN)
V: 500mV/div. H: 10µsec/div.



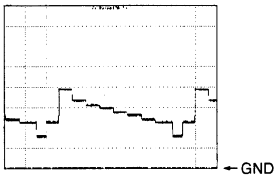
㉒ **JA502-pin 7 (Bin)**
(Function : LINE1 IN)
V: 500mV/div. H: 10µsec/div.



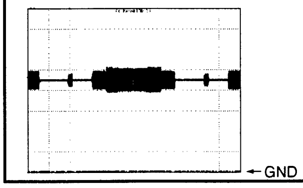
㉓ **JA502-pin 15 (R/Cin)**
(Function : LINE1 IN)
V: 500mV/div. H: 10µsec/div.



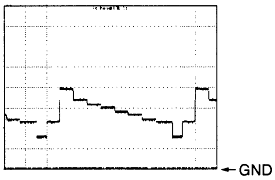
㉔ **CN701-pin 9 (Y/CVBS)**
(Function : LINE1 IN)
V: 500mV/div. H: 10µsec/div.



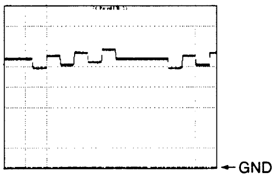
㉕ **CN701-pin 7 (C/CB)**
(Function : LINE1 IN)
V: 500mV/div. H: 10µsec/div.



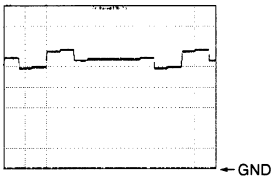
㉖ **CN701-pin 9 (Y/CVBS)**
(Function : LINE1 IN)
V: 500mV/div. H: 10µsec/div.



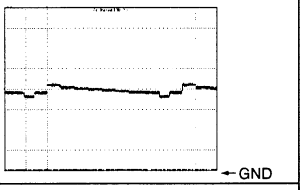
㉗ **CN701-pin 7 (C/CB)**
(Function : LINE1 IN)
V: 500mV/div. H: 10µsec/div.



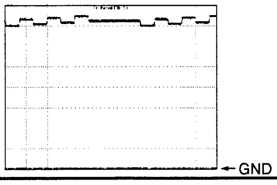
㉘ **CN701-pin 11 (CR)**
(Function : LINE1 IN)
V: 500mV/div. H: 10µsec/div.



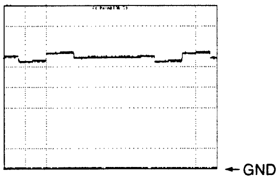
㉙ **Q805-E (YIN)**
(Function : LINE1 IN)
V: 1V/div. H: 10µsec/div.



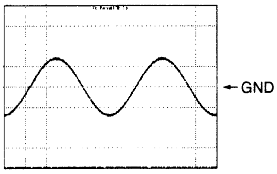
㉚ **Q806-E (CBIN)**
(Function : LINE1 IN)
V: 500mV/div. H: 10µsec/div.



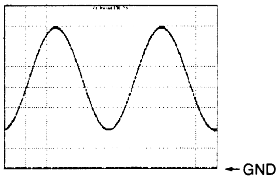
㉛ **Q807-E (CRIN)**
(Function : LINE1 IN)
V: 500mV/div. H: 10µsec/div.



㉜ **JA502-pin 6 (Lin)**
(Function : LINE1 IN)
V: 2V/div. H: 200µsec/div.



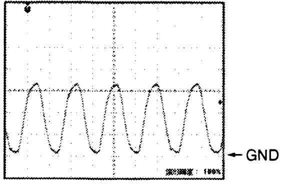
㉝ **CN701-pin 5 (ALT to M)**
(Function : LINE1 IN)
V: 500mV/div. H: 200µsec/div.



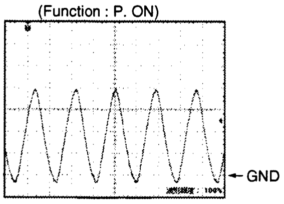
C MAIN ASSY

Measurement condition ;
No.3 to No.8, No.10 to No.13 : 75% Color-bar, A1 disc 2-20
No.15 ,No.16 : 75% Color-bar
No.9, No.14 : 1kHz, 2Vrms, A1 disc 2-1
No.17 : 1kHz, 2Vrms

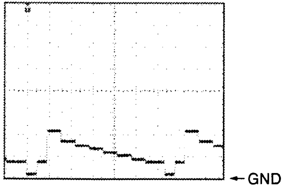
① **X4102 - pin 4 (ADMCLKI)**
V: 1V/div. H: 20nsec/div.
(Function : P.ON)



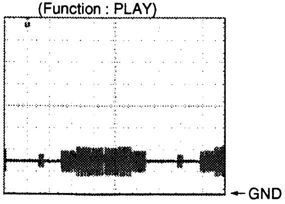
② **R4205 (VMCLK)**
V: 1V/div. H: 20nsec/div.
(Function : P. ON)



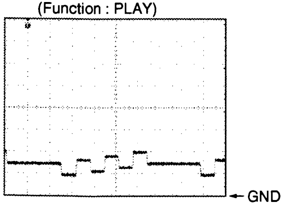
③ **Q2103 - B (Y)**
V: 500mV/div. H: 10μsec/div.
(Function : PLAY)



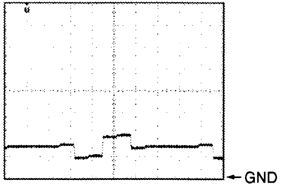
④ **Q2102 - B (C)**
V: 500mV/div. H: 10μsec/div.
(Function : PLAY)



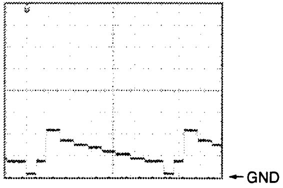
⑤ **Q2104 - B (Cb)**
V: 500mV/div. H: 10μsec/div.
(Function : PLAY)



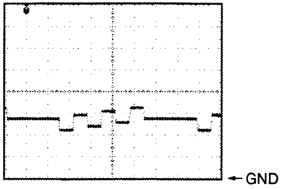
⑥ **Q2105 - B (Cr)**
V: 500mV/div. H: 10μsec/div.
(Function : PLAY)



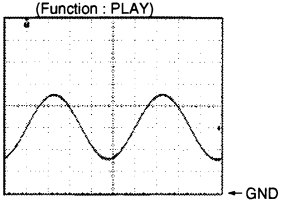
⑦ **Q2101 - B (Y)**
V: 500mV/div. H: 10μsec/div.
(Function : PLAY)



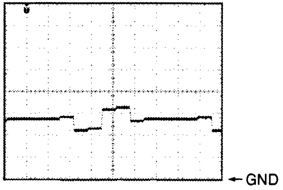
⑧ **CN2001-pin 23 (Cb Out)**
V: 500mV/div. H: 10μsec/div.
(Function : PLAY)



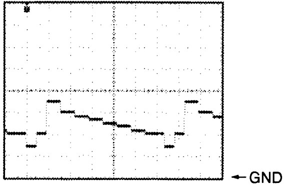
⑨ **CN2001-pin 17 (Lch Out)**
V: 2V/div. H: 200μsec/div.
(Function : PLAY)



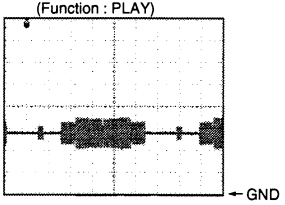
⑩ **CN2001-pin 21 (Cr Out)**
V: 500mV/div. H: 10μsec/div.
(Function : PLAY)



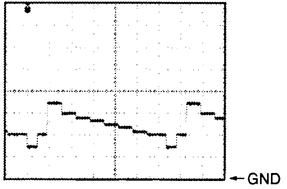
⑪ **CN2001-pin 29 (Y Out)**
V: 500mV/div. H: 10μsec/div.
(Function : PLAY)



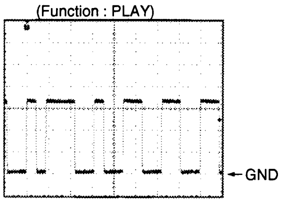
⑫ **CN2001-pin 27 (C Out)**
V: 500mV/div. H: 10μsec/div.
(Function : PLAY)



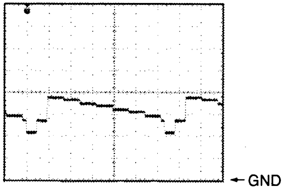
⑬ **CN2001-pin 25 (Y Out)**
V: 500mV/div. H: 10μsec/div.
(Function : PLAY)



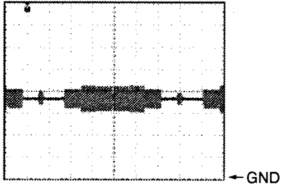
⑭ **CN3001-pin 13 (PCMAIN)**
V: 1V/div. H: 400nsec/div.
(Function : PLAY)



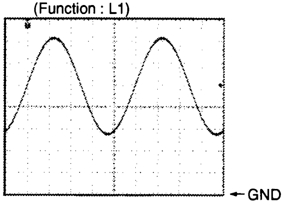
⑮ **CN2001-pin 9 (SEL Y/V)**
V: 500mV/div. H: 10μsec/div.
(Function : L1)



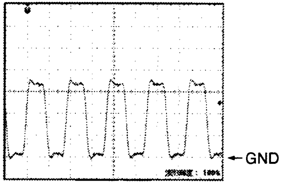
⑯ **CN2001-pin 7 (SEL C)**
V: 500mV/div. H: 10μsec/div.
(Function : L1)



⑰ **CN2001-pin 5 (SEL L)**
V: 500mV/div. H: 200μsec/div.
(Function : L1)



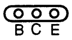
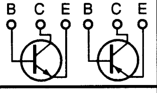
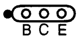
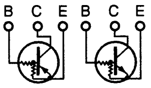
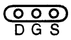
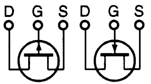
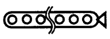
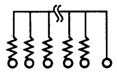
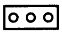
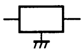
⑱ **IC3402-pin 7 (27MCLK)**
V: 1V/div. H: 20nsec/div.
(Function : P.ON)



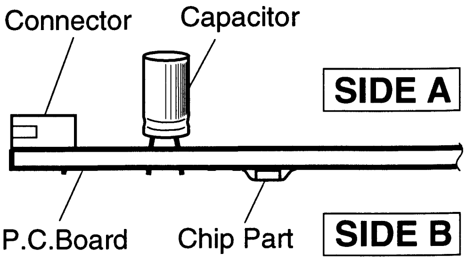
4. PCB CONNECTION DIAGRAM

NOTE FOR PCB DIAGRAMS :

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3-terminal regulator

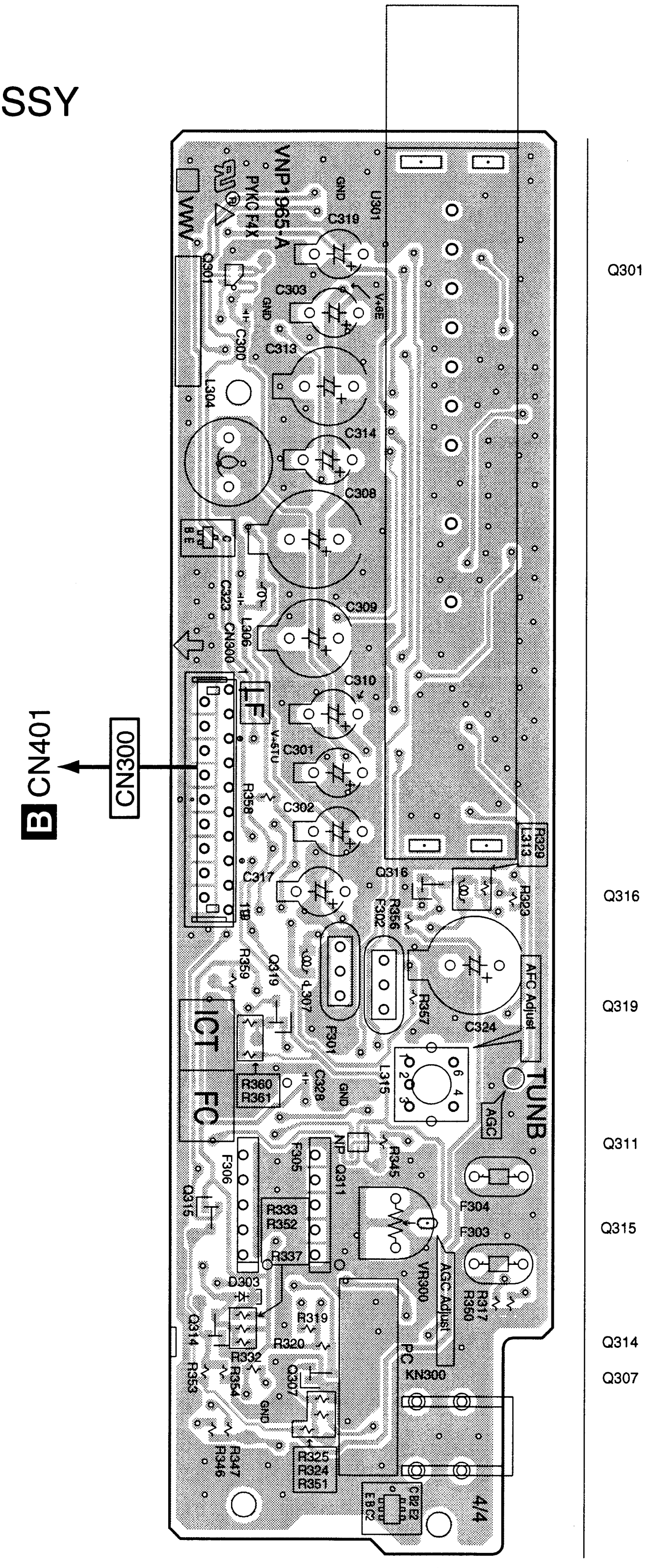
3. The parts mounted on this PCB include all necessary parts for several destinations.
   For further information for respective destinations, be sure to check with the schematic diagram.
4. View point of PCB diagrams.



4.1 TUNB ASSY

SIDE A **SIDE A**

A TUNB ASSY

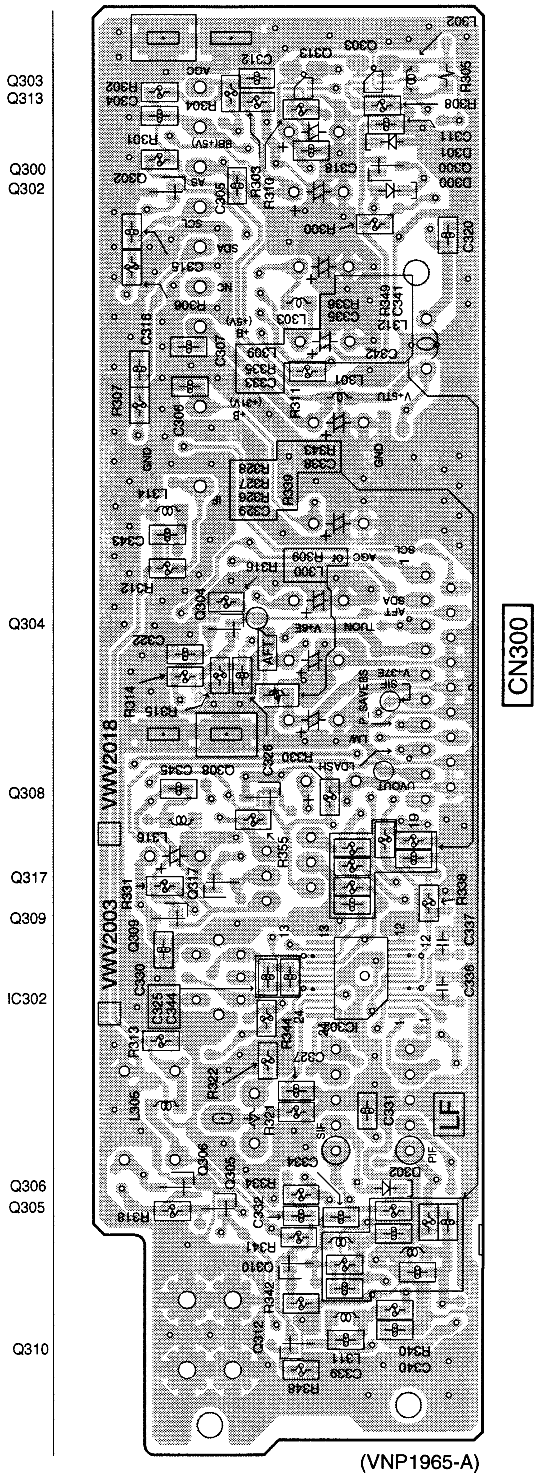

B CN401
CN300
VNP1965-A
PYKO F4X
U301
GND
Q301
C319
C303
C300
V48E
C313
L304
C314
C308
C323
L306
CN300
C309
C310
LF
V+4TU
C301
R358
C302
C317
R329
L313
Q316
R356
F302
R323
R359
Q319
L307
F301
R357
C324
AFC Adjust
ICT
FC
R360
R361
C328
GND
L315
TUNB
AGC
F306
F305
NP
Q311
R345
Q315
R333
R352
R337
F304
F303
VR300
AGC Adjust
R317
R350
D303
R319
R320
Q314
R332
R353
R354
Q307
PC
KN300
GND
R347
R346
R325
R324
R351
4/4
Q301
Q316
Q319
Q311
Q315
Q314
Q307

(VNP1965-A)

SIDE B

SIDE B

A TUNB ASSY


Q303
Q313
Q300
Q302
Q304
Q308
Q317
Q309
IC302
Q306
Q305
Q310
CN300
VWV2018
VWV2003
LF

(VNP1965-A)

A

A

4.2 JCKB ASSY

SIDE A

A

B JCKB ASSY

B

IC650 Q507

Q500 Q703
Q102
Q501

Q516 Q514 Q513
IC701
Q515
IC500 Q511 Q502
Q111
Q505 Q509

IC104 Q504

Q808

C

IC801
IC201 Q202
IC807 Q208 Q802
Q206

Q803
Q205 Q207 Q801 Q804
IC201 IC202 IC810 IC809 IC811
IC204
IC805 IC808
IC806

Q204

IC803 Q806

Q805

D

Q807 Q702

Q709

IC101

IC502

IC504 Q708
Q710

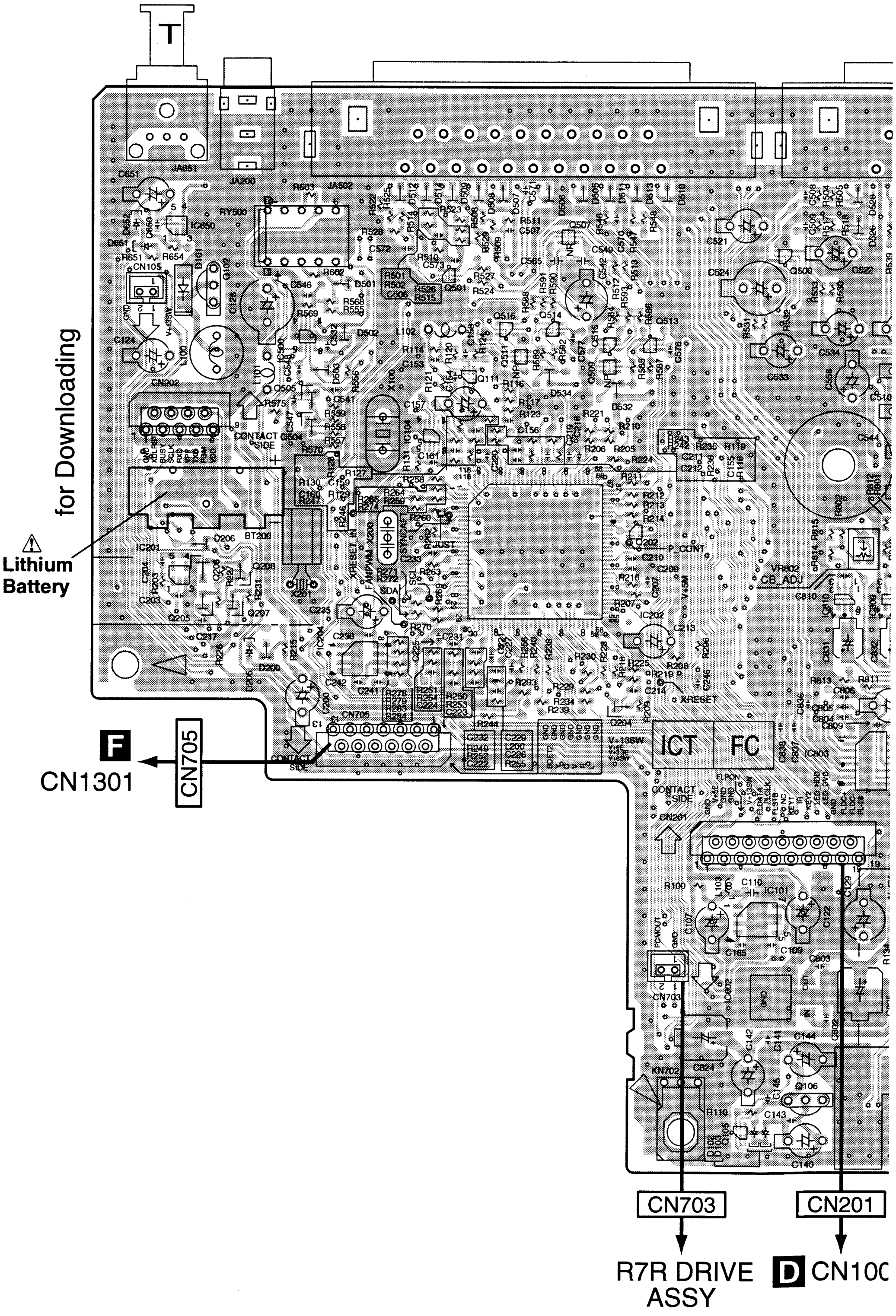
IC503
IC802 IC703 Q108 Q700
Q107
IC103 Q112

E

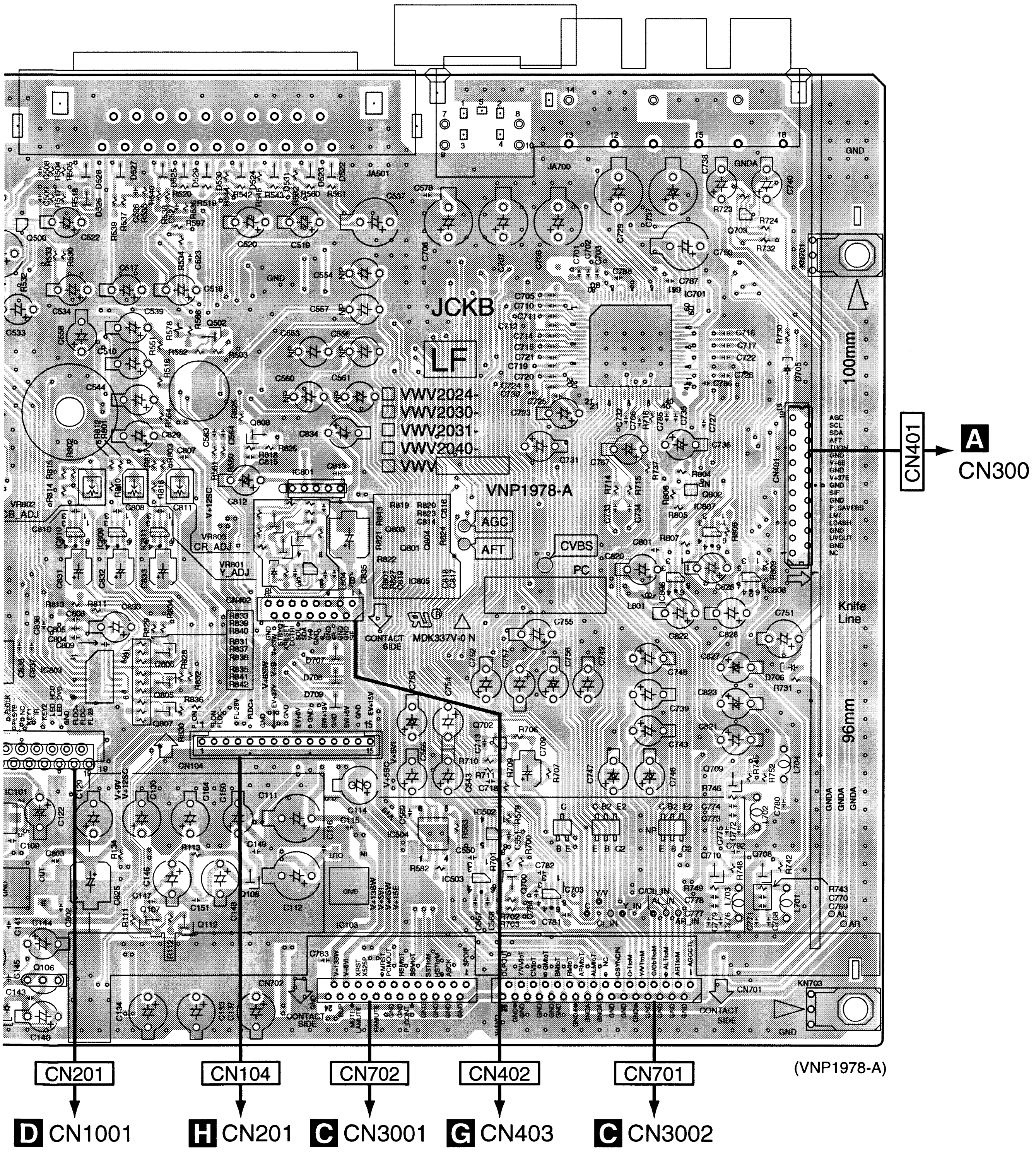
Q106

Q105

F


T
JA651
JA200
JA502
RY500
for Downloading
CN202
CONTACT SIDE
⚠ Lithium Battery
BT200
IC201
CN705
CONTACT SIDE
F CN1301
CN705
ICT
FC
CONTACT SIDE
CN201
IC101
CN703
KN702
Q106
CN703
CN201
R7R DRIVE ASSY
D CN10C

SIDE A


JCKB
LF
VWV2024-
VWV2030-
VWV2031-
VWV2040-
VWV
VNP1978-A
AGC
AFT
CVBS
PC
MDK337V-0 N
CONTACT SIDE
100mm
96mm
Knife Line
CN401
A CN300
CN201
CN104
CN702
CN402
CN701
(VNP1978-A)
D CN1001
H CN201
C CN3001
G CN403
C CN3002

B

A

SIDE B

B JCKB ASSY

B

Q104

Q705

Q503

IC501 Q704 Q707
Q110 Q506

Q209

Q109

Q203

C

IC203

Q200 Q201

D

IC702

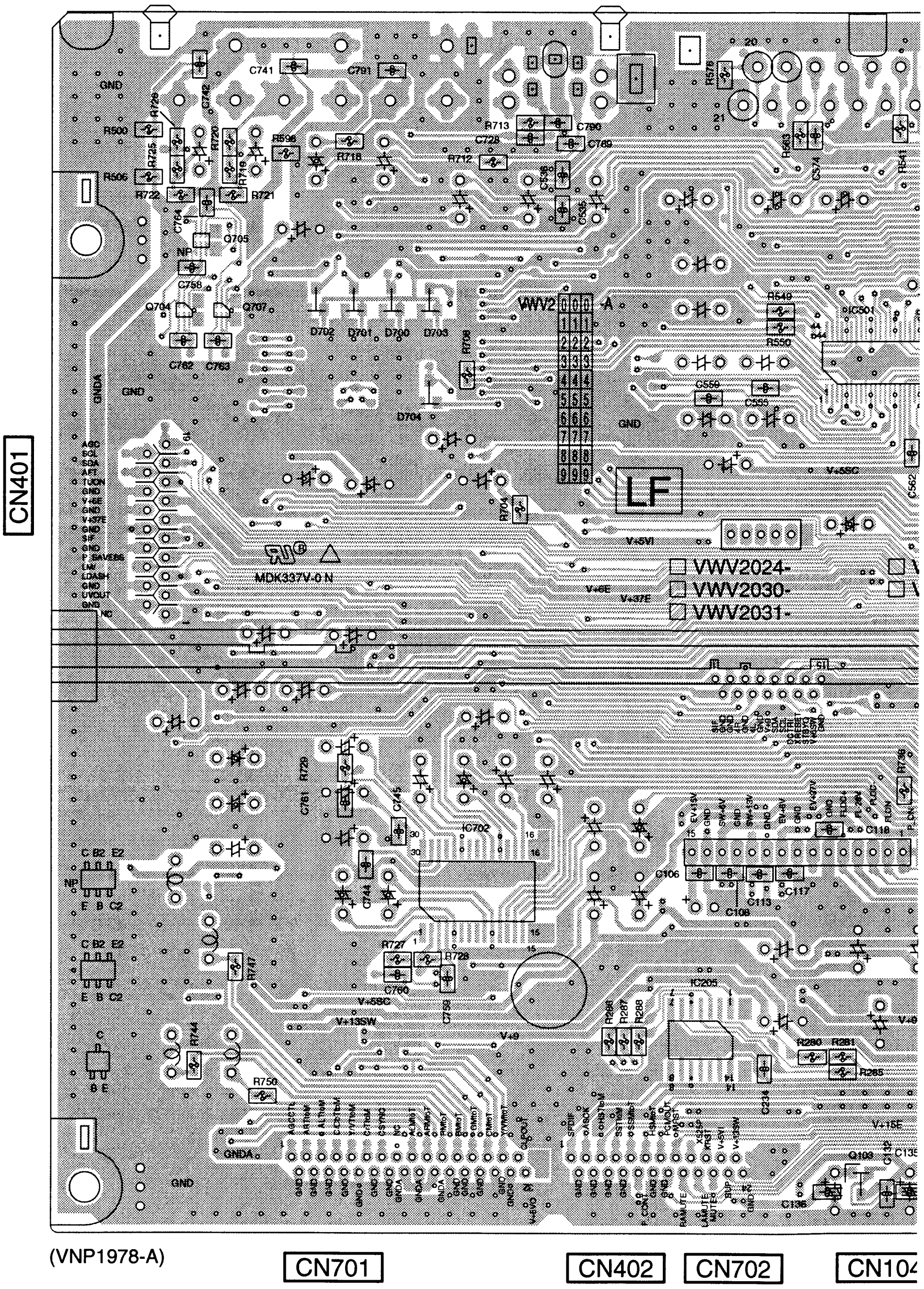
Q100

IC102

IC205 Q101

E

Q103


CN401
VWV2
LF
MDK337V-0 N
☐ VWV2024-
☐ VWV2030-
▨ VWV2031-
IC702
IC205
IC501
GND
GNDA
CN701
CN402
CN702
CN104

(VNP1978-A)

F

SIDE B

A

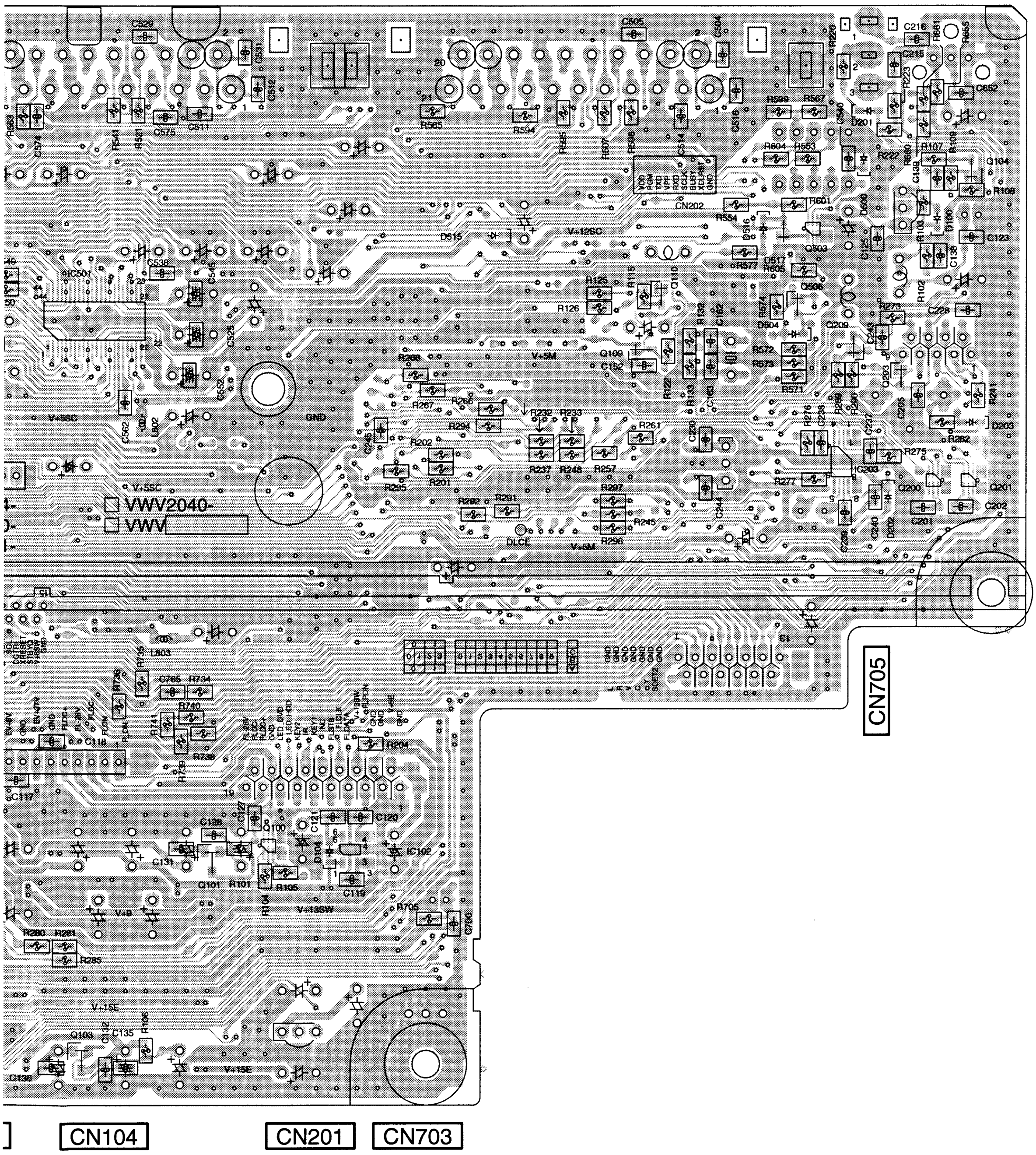
B

C

D

E

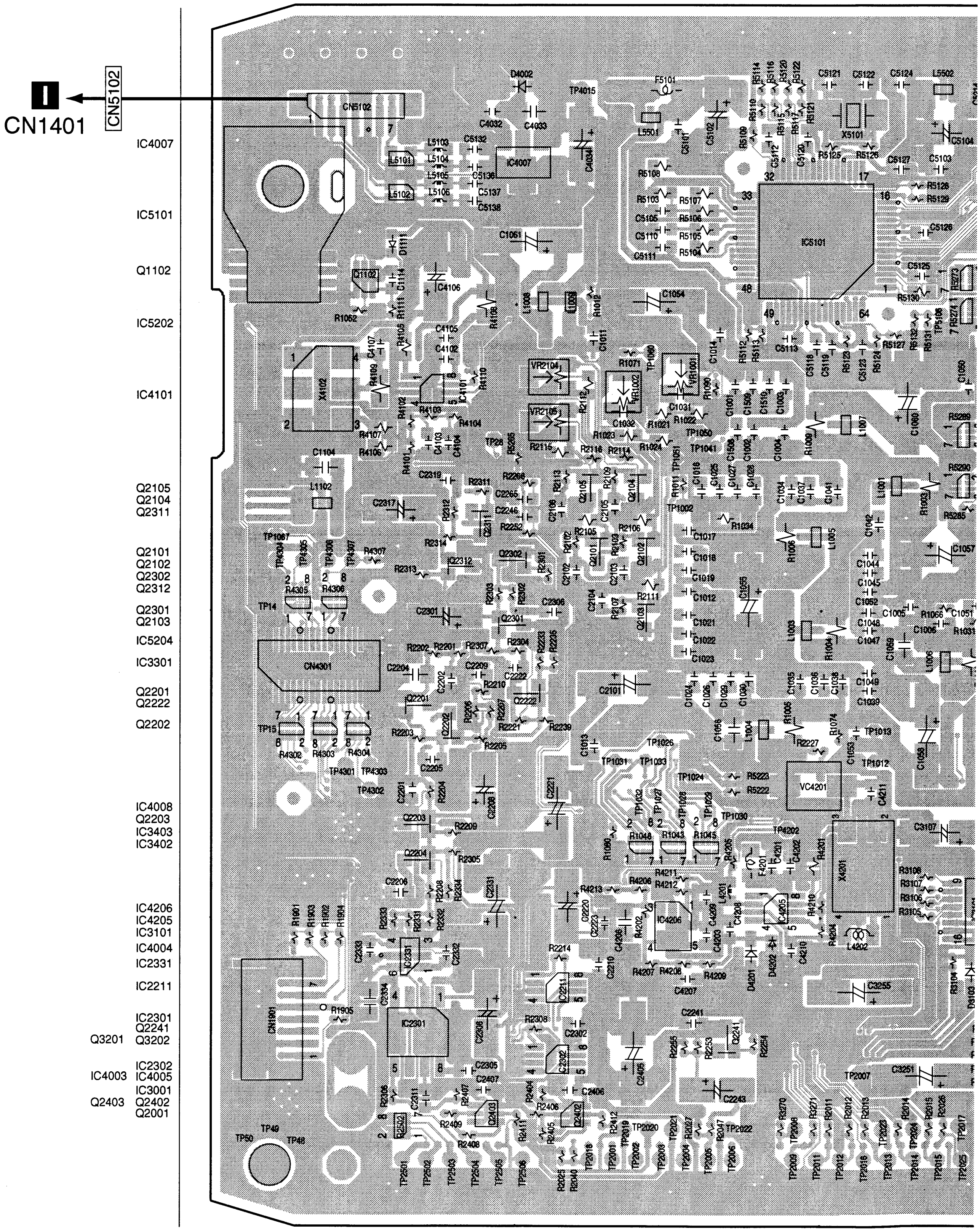
F


CN705
CN104
CN201
CN703
VWV2040-
VWV
V+5SC
GND
V+5M
V+12SC
V+13SW
V+15E
V+9
DLCE
IC507
IC102
IC203
CN202
Q100
Q101
Q103
Q104
Q109
Q200
Q201
Q503
Q506

B

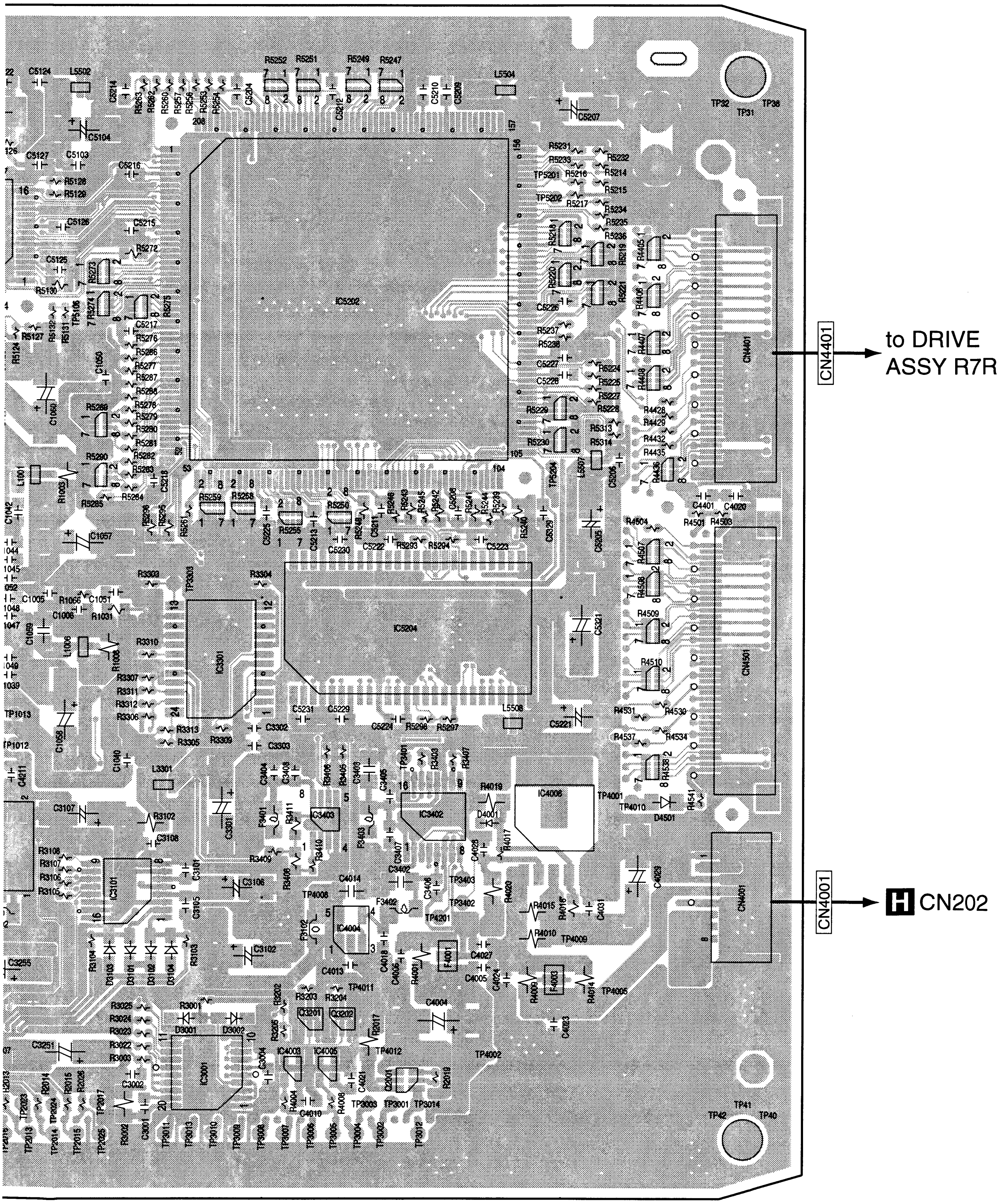
4.3 MAIN ASSY

SIDE A **C** MAIN ASSY


I
CN1401
CN5102
IC4007
IC5101
Q1102
IC5202
IC4101
Q2105
Q2104
Q2311
Q2101
Q2102
Q2302
Q2312
Q2301
Q2103
IC5204
IC3301
Q2201
Q2222
Q2202
IC4008
Q2203
IC3403
IC3402
IC4206
IC4205
IC3101
IC4004
IC2331
IC2211
IC2301
Q2241
Q3201 Q3202
IC2302
IC4003 IC4005
IC3001
Q2403 Q2402
Q2001
CN5102
IC4007
IC5101
X4102
CN4301
CN1901
IC2301
IC4206
VC4201
X4201
VR2104
VR2105
VR1002
VR1001
TP50
TP49
TP48

SIDE A

This PCB is six layer structure.


IC5202
IC5204
IC3301
IC3101
IC3001
IC3402
IC3403
IC4004
IC4003
IC4005
IC4006
CN4401
CN4501
CN4001
CN4401
to DRIVE ASSY R7R
CN4001
H CN202
TP32
TP31
TP38
TP42
TP41
TP40

(VNP1960-C : WYXU type)
(VNP1976-C : WYXK and WVXK types)

C

SIDE B

C MAIN ASSY

A

IC1103
IC1104

IC1301

B

IC5301

IC5341

IC1421
IC1102

C

IC4006

IC5321
IC1001

IC5322
IC1401

D

IC5002
IC1101

IC3201

Q4000

IC4002
IC1201

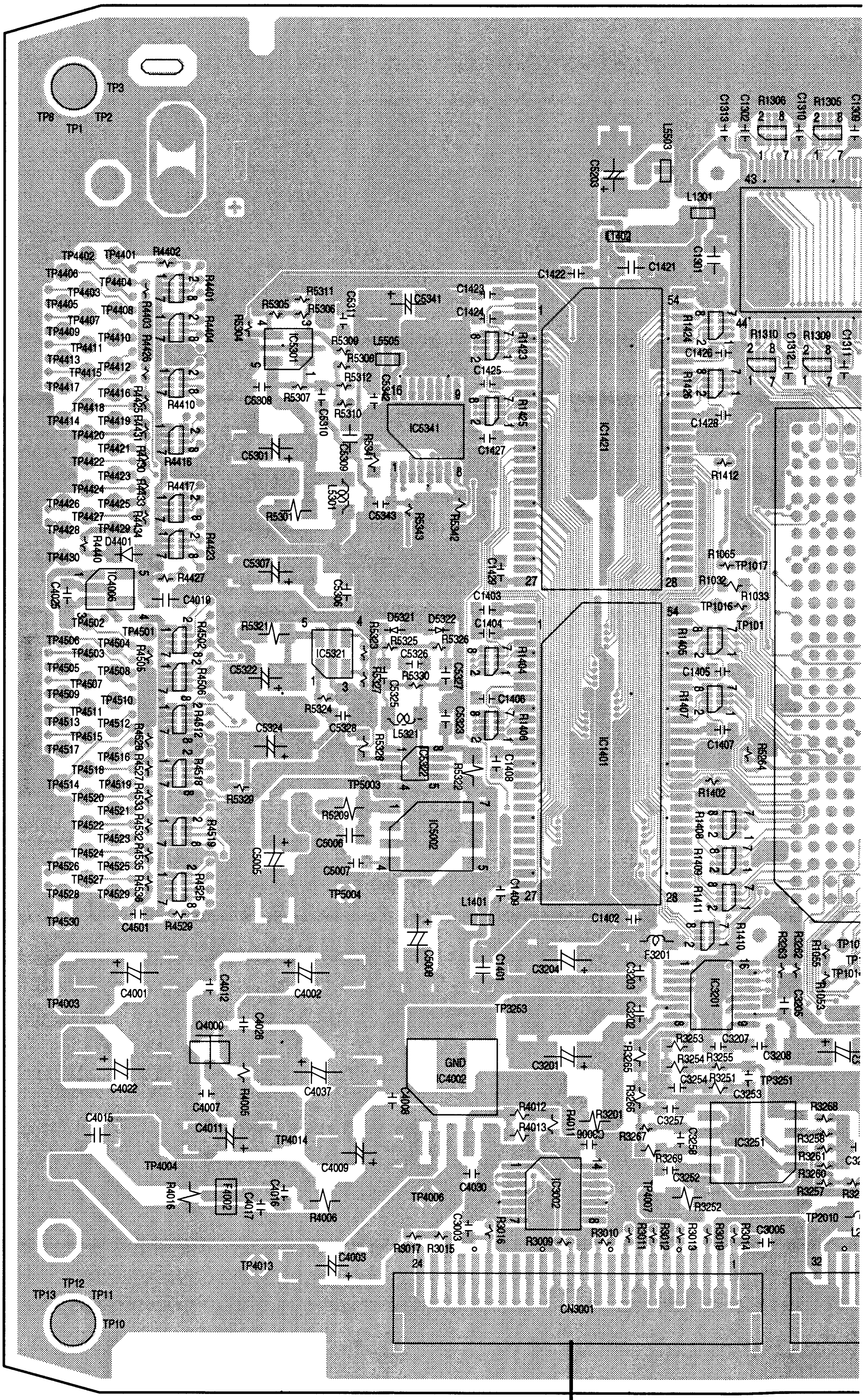
IC2501

E

IC3251

IC3002

F



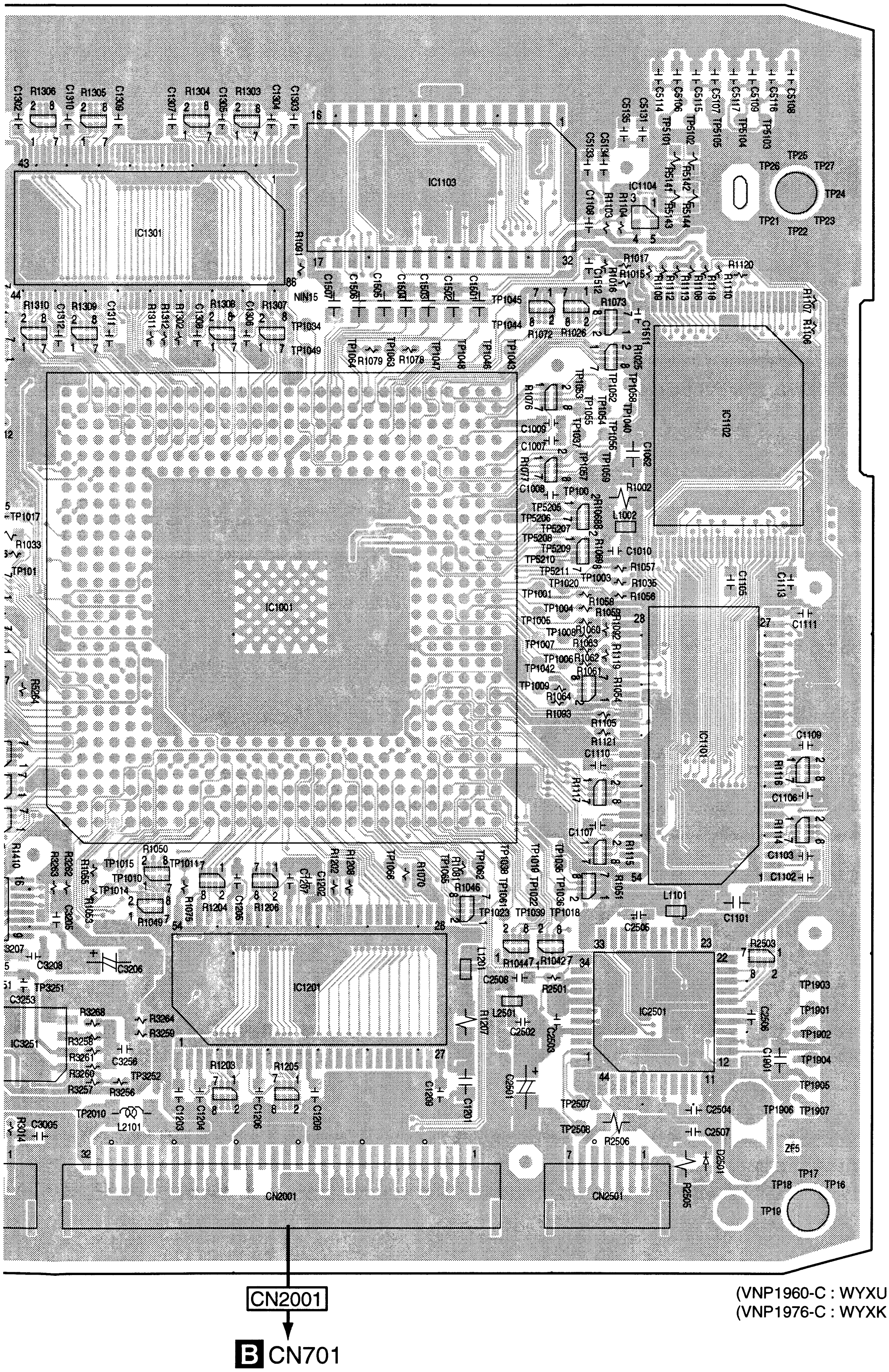
TP3
TP8
TP1
TP2
L5503
C5203
L1301
C1421
C1422
R1306
R1305
R1310
R1309
IC1421
IC1401
IC5341
IC5301
IC5321
IC5322
IC5002
IC4006
D4401
D5321
D5322
L5505
L5301
L5321
L1401
C1402
IC3201
IC3251
IC3002
GND
IC4002
Q4000
F4002
TP5003
TP5004
TP4003
TP4004
TP4006
TP4013
TP4014
TP3263
TP3251
TP1016
TP1017
TP101
TP2010
CN3001
TP12
TP13
TP11
TP10

CN3001

B CN702

SIDE B

This PCB is six layer structure.


IC1301
IC1103
IC1104
IC1102
IC1001
IC1101
IC1201
IC2501
IC3251
CN2001
CN2501
L1002
L1101
L1201
L2501
L2101
D2501
TP17
TP18
TP19
TP16
TP21
TP22
TP23
TP24
TP25
TP26
TP27
ZF5
CN2001
B CN701

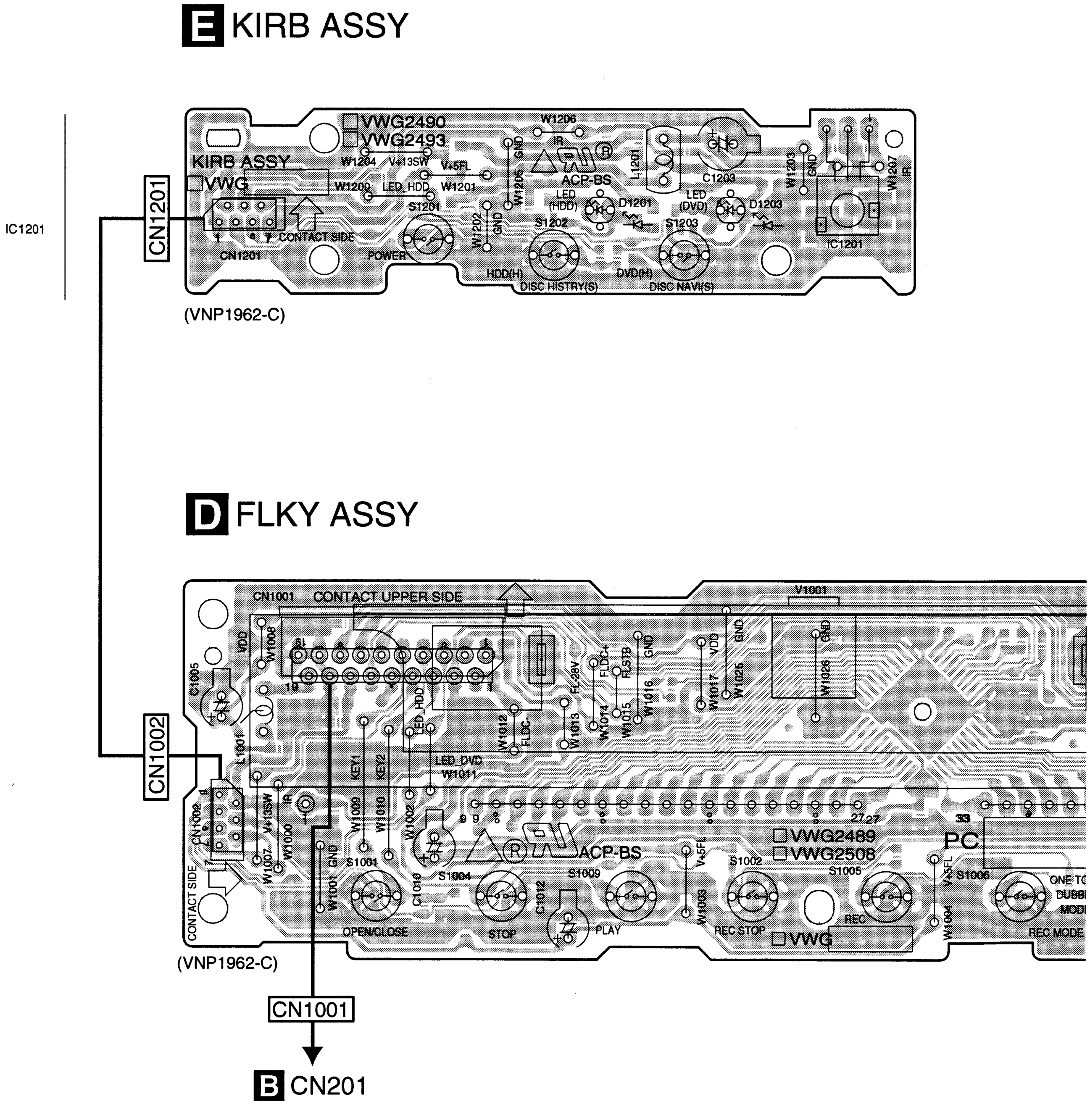
(VNP1960-C : WYXU type)
(VNP1976-C : WYXK and WVXK types)

A
B
C
D
E
F

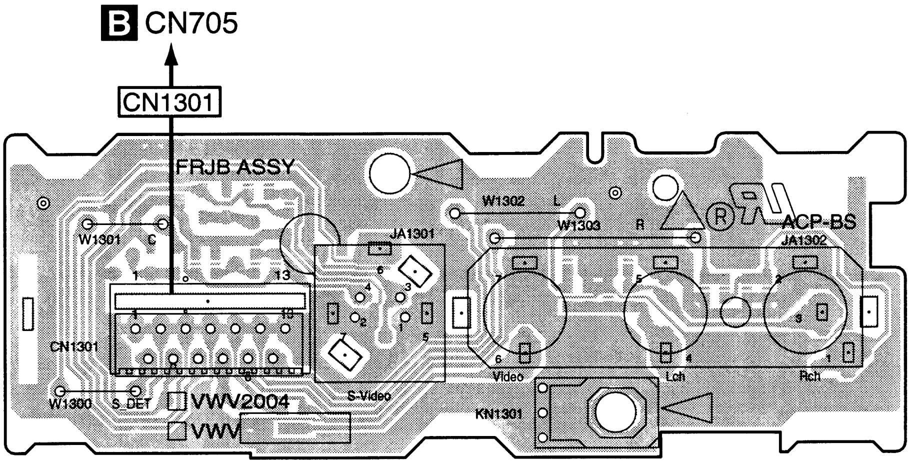
C

4.4 FLKY, KIRB, FRJB and DVJB ASSYS

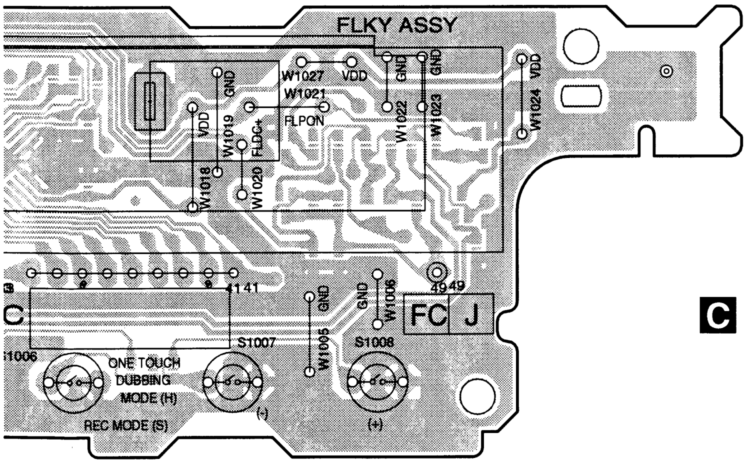
SIDE A


E KIRB ASSY
IC1201
CN1201
VWG2490
VWG2493
KIRB ASSY
VWG
W1206
IR
W1204
V+13SW
V+5FL
W1200
LED_HDD
W1201
W1205
GND
ACP-BS
L1201
C1203
W1203
GND
W1207
IR
S1201
W1202
GND
LED (HDD)
D1201
LED (DVD)
D1203
S1202
S1203
1
6
7
CONTACT SIDE
CN1201
POWER
HDD(H)
DISC HISTRY(S)
DVD(H)
DISC NAVI(S)
IC1201
(VNP1962-C)
D FLKY ASSY
CN1001
CONTACT UPPER SIDE
V1001
VDD
W1008
C1005
18
19
1
2
FL-28V
FLDC+
FLSTB
GND
VDD
GND
W1016
W1017
W1025
W1026
GND
LED_HDD
W1012
FLDC-
W1013
W1014
W1015
L1001
KEY1
KEY2
LED_DVD
W1011
CN1002
CN1002
V+13SW
IR
W1009
W1010
W1002
9
27
33
VWG2489
VWG2508
PC
W1007
W1000
GND
S1001
ACP-BS
V+5FL
S1002
S1005
V+5FL
S1006
CONTACT SIDE
W1001
C1010
S1004
C1012
S1009
W1003
W1004
ONE TO
DUBBI
MODE
OPEN/CLOSE
STOP
PLAY
REC STOP
VWG
REC
REC MODE
(VNP1962-C)
CN1001
B CN201

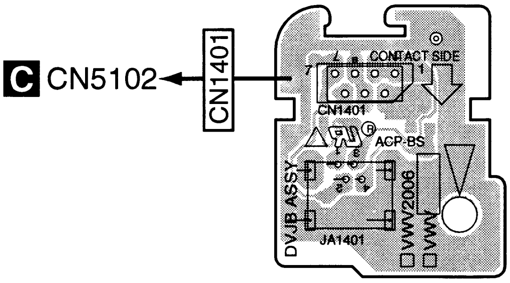
F FRJB ASSY


B CN705
CN1301
FRJB ASSY
W1301
C
1
13
CN1301
W1300
S_DET
VWV2004
VWV
JA1301
S-Video
W1302
L
W1303
R
ACP-BS
JA1302
Video
Lch
Rch
KN1301

(VNP1962-C)


FLKY ASSY
W1027
VDD
W1021
GND
FLPON
VDD
W1019
FLDC+
W1018
W1020
W1022
W1023
W1024
VDD
41 41
49 49
FC
J
S1006
ONE TOUCH DUBBING MODE (H)
REC MODE (S)
S1007
(-)
W1005
GND
W1006
S1008
(+)

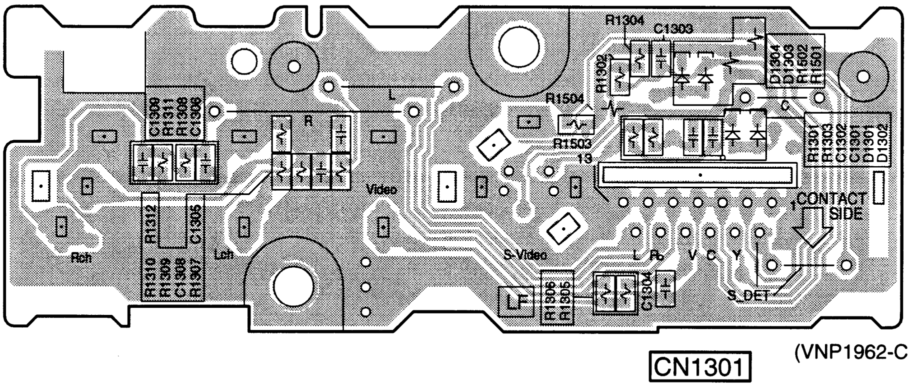
I DVJB ASSY


C CN5102
CN1401
CONTACT SIDE
CN1401
ACP-BS
DVJB ASSY
JA1401
VWV2006
VWV

(VNP1962-C)

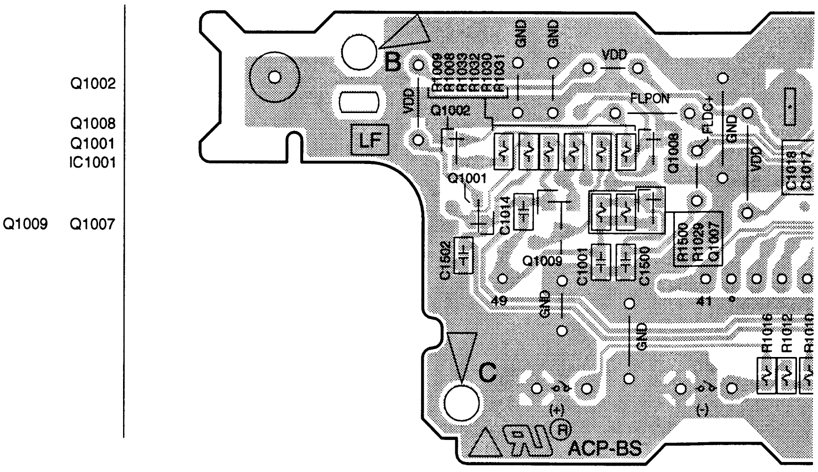
SIDE B

F FRJB ASSY

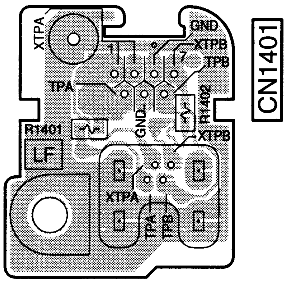

R1304
C1303
R1302
R1504
R1503
13
D1504
D1503
R1502
R1501
R1301
R1303
C1302
C1301
D1301
D1302
C1300
R1311
R1308
C1306
R
L
Video
R1312
C1305
R1310
R1309
C1308
R1307
Rch
Lch
S-Video
L
R
V
C
Y
1
CONTACT SIDE
S_DET
LF
R1306
R1305
C1304
CN1301

(VNP1962-C)

D FLKY ASSY


Q1002
Q1008
Q1001
IC1001
Q1009
Q1007
B
R1009
R1008
R1033
R1032
R1030
R1031
GND
GND
VDD
VDD
FLPON
Q1002
FLDC+
GND
LF
Q1008
VDD
C1018
C1017
Q1001
C1014
C1502
Q1009
C1001
C1500
R1500
R1029
Q1007
49
41
GND
GND
R1016
R1012
R1010
C
(+)
(-)
ACP-BS

I DVJB ASSY

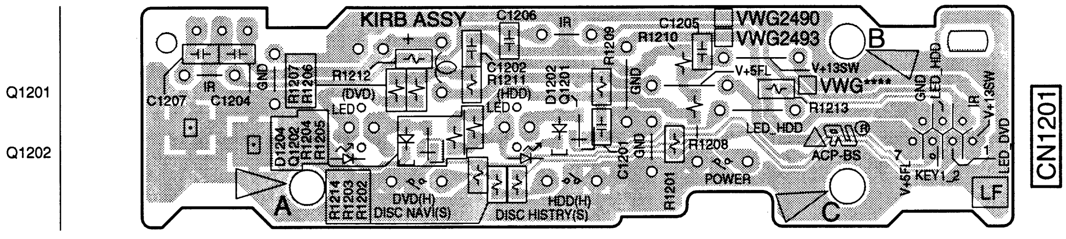

XTPA
GND
XTPB
1
7
TPB
TPA
GND
R1402
R1401
XTPB
LF
XTPA
TPA
TPB
CN1401

(VNP1962-C)

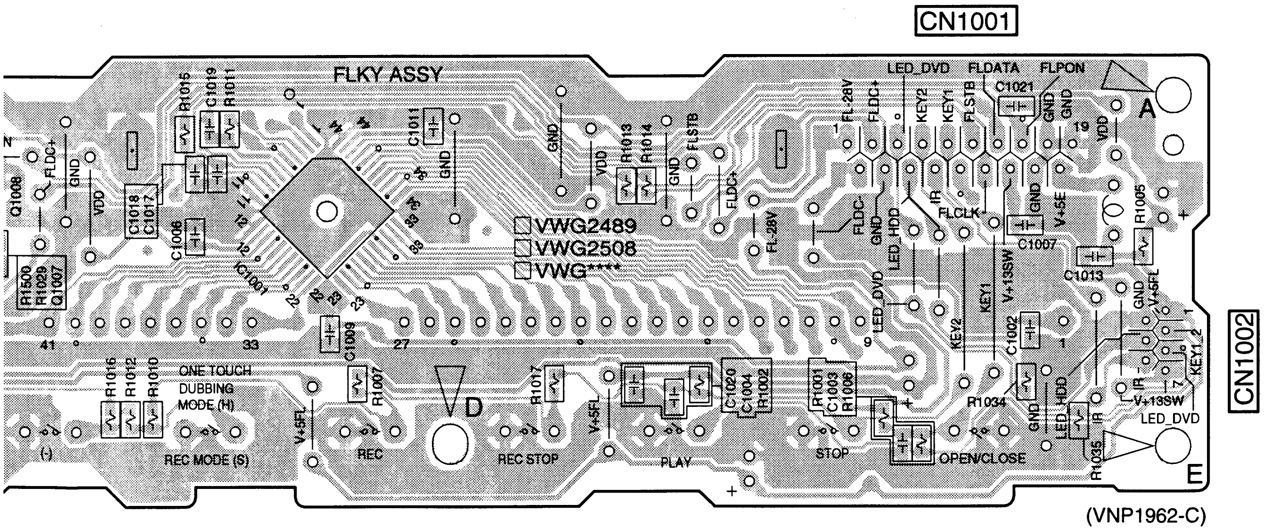
D F I

SIDE B

E KIRB ASSY


Q1201
Q1202
KIRB ASSY
C1206
IR
C1205
VWG2490
VWG2493
VWG****
R1210
R1209
R1212
(DVD)
R1211
(HDD)
C1202
R1207
R1206
GND
C1207
C1204
LED
D1202
Q1201
D1204
Q1202
R1204
R1205
V+13SW
V+5FL
R1213
LED_HDD
ACP-BS
R1208
C1201
POWER
R1201
R1214
R1203
R1202
DVD(H)
DISC NAVI(S)
HDD(H)
DISC HISTRY(S)
A
B
C
LED_DVD
KEY1_2
IR
V+5FL
7
1
LF
CN1201

(VNP1962-C)

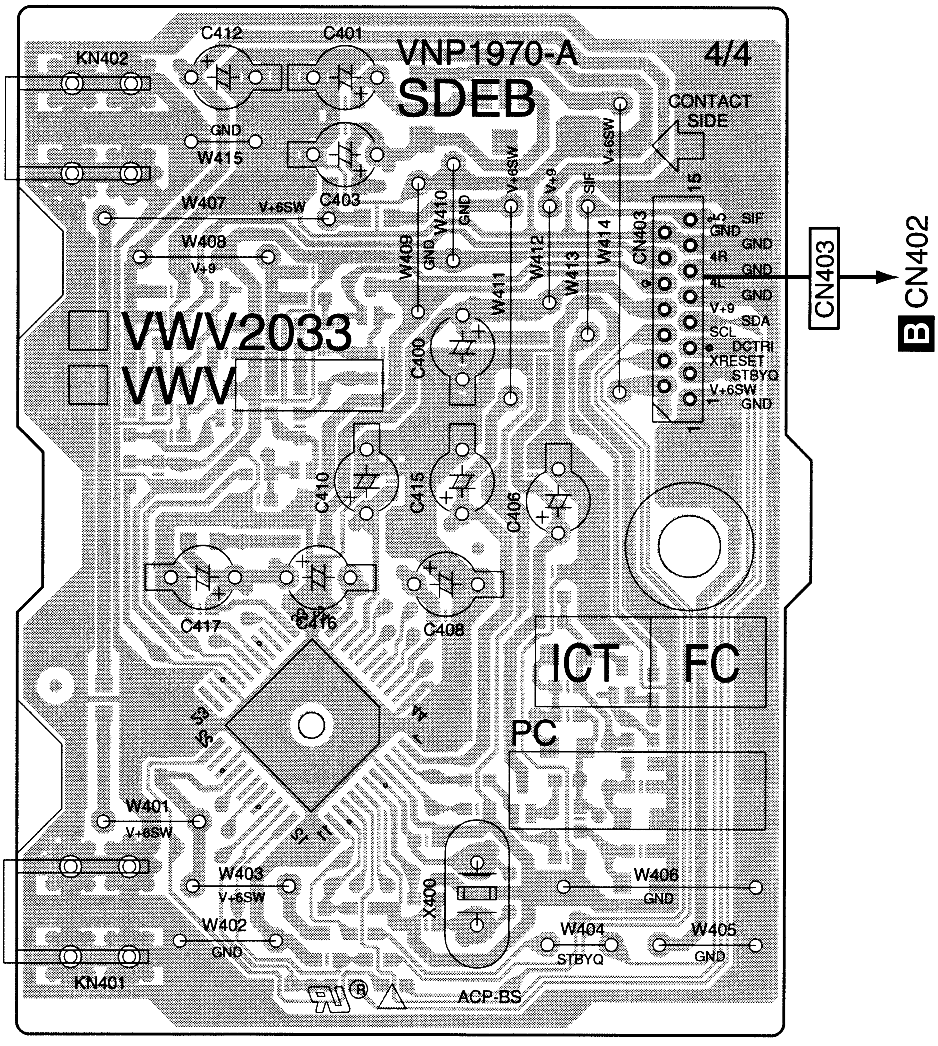

CN1001
FLKY ASSY
FLDC+
GND
VDD
Q1008
R1500
R1029
Q1007
C1018
C1017
C1006
R1015
C1019
R1011
IC1001
C1011
R1013
R1014
FLSTB
FLDC-
FL-28V
LED_DVD
LED_HDD
KEY2
KEY1
FLDATA
FLPON
C1021
FLCLK
V+5E
V+13SW
C1007
C1013
R1005
VWG2489
VWG2508
VWG****
41
33
27
9
1
19
C1009
R1016
R1012
R1010
ONE TOUCH
DUBBING
MODE (H)
(-)
REC MODE (S)
V+5FL
R1007
REC
D
R1017
REC STOP
PLAY
C1020
C1004
R1002
R1001
C1003
R1006
STOP
OPEN/CLOSE
R1034
C1002
R1035
A
E
CN1002

(VNP1962-C)

4.5 SDEB ASSY

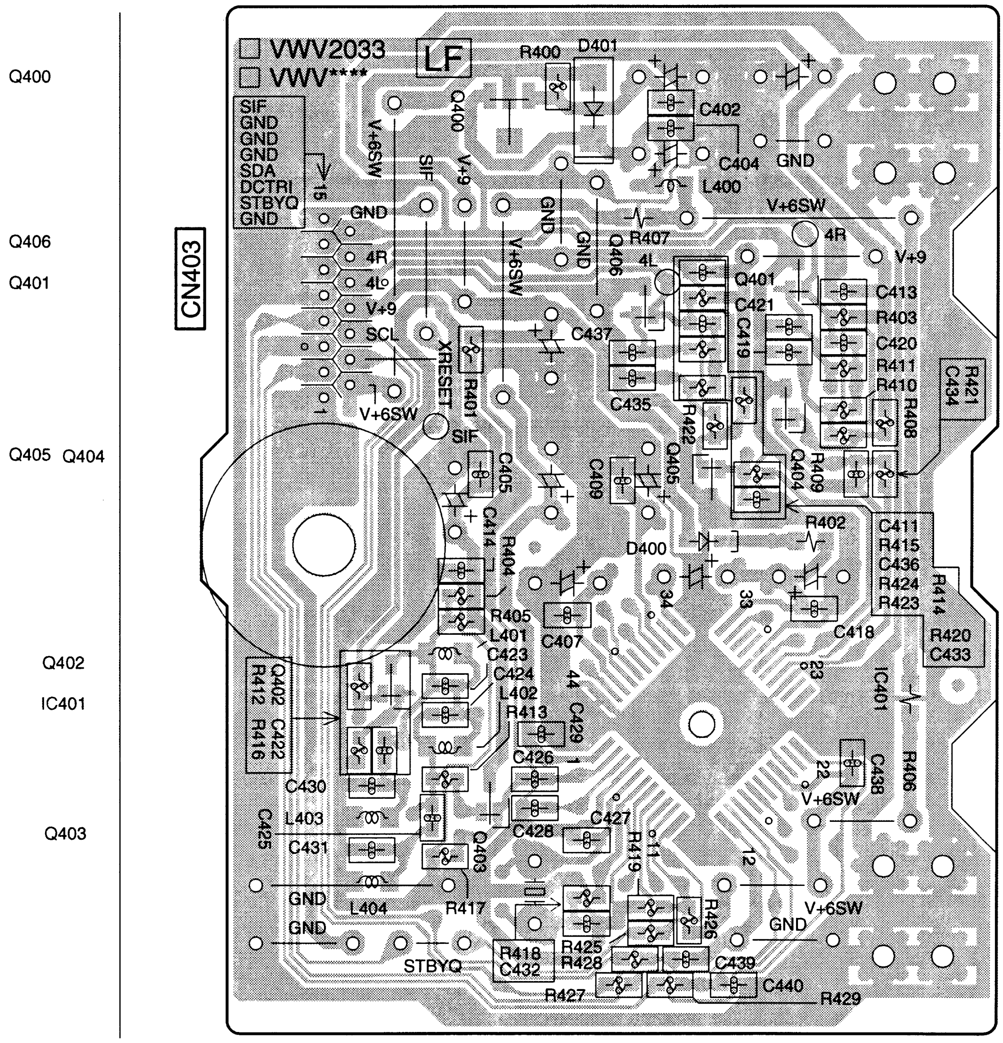
SIDE A **SIDE A**

G SDEB ASSY


VNP1970-A
SDEB
4/4
CONTACT SIDE
KN402
KN401
C412
C401
C403
C400
C410
C415
C406
C417
C416
C408
W415
GND
W407
V+6SW
W408
V+9
W409
GND
W410
GND
V+6SW
W411
V+9
W412
SIF
W413
V+6SW
W414
CN403
15
1
SIF
GND
4R
GND
4L
GND
V+9
SDA
SCL
DCTRI
XRESET
STBYQ
V+6SW
GND
CN403
B CN402
VWV2033
VWV
ICT
FC
PC
W401
V+6SW
W403
V+6SW
W402
GND
X400
W406
GND
W404
STBYQ
W405
GND
ACP-BS

(VNP1970-A)

G SDEB ASSY


Q400
Q406
Q401
Q405 Q404
Q402
IC401
Q403
CN403
VWV2033
VWV****
LF
SIF
GND
GND
GND
SDA
DCTRI
STBYQ
GND
15
1
4R
4L
V+9
SCL
XRESET
V+6SW
SIF
R400
D401
C402
C404
GND
L400
V+6SW
R407
4R
4L
V+9
Q401
C421
C419
C413
R403
C420
R411
R410
R421
C434
R408
R409
Q404
Q405
R422
C435
C437
R401
C405
C414
R404
C409
D400
R402
C411
R415
C436
R424
R423
R414
R420
C433
C418
34
33
23
44
22
12
11
IC401
R406
C438
R405
L401
C423
C424
L402
R413
C429
C426
C407
Q402
C422
R412
R416
C430
L403
C425
C431
L404
R417
Q403
C428
C427
R419
R426
GND
GND
STBYQ
R418
C432
R425
R428
R427
C439
C440
R429
V+6SW
GND

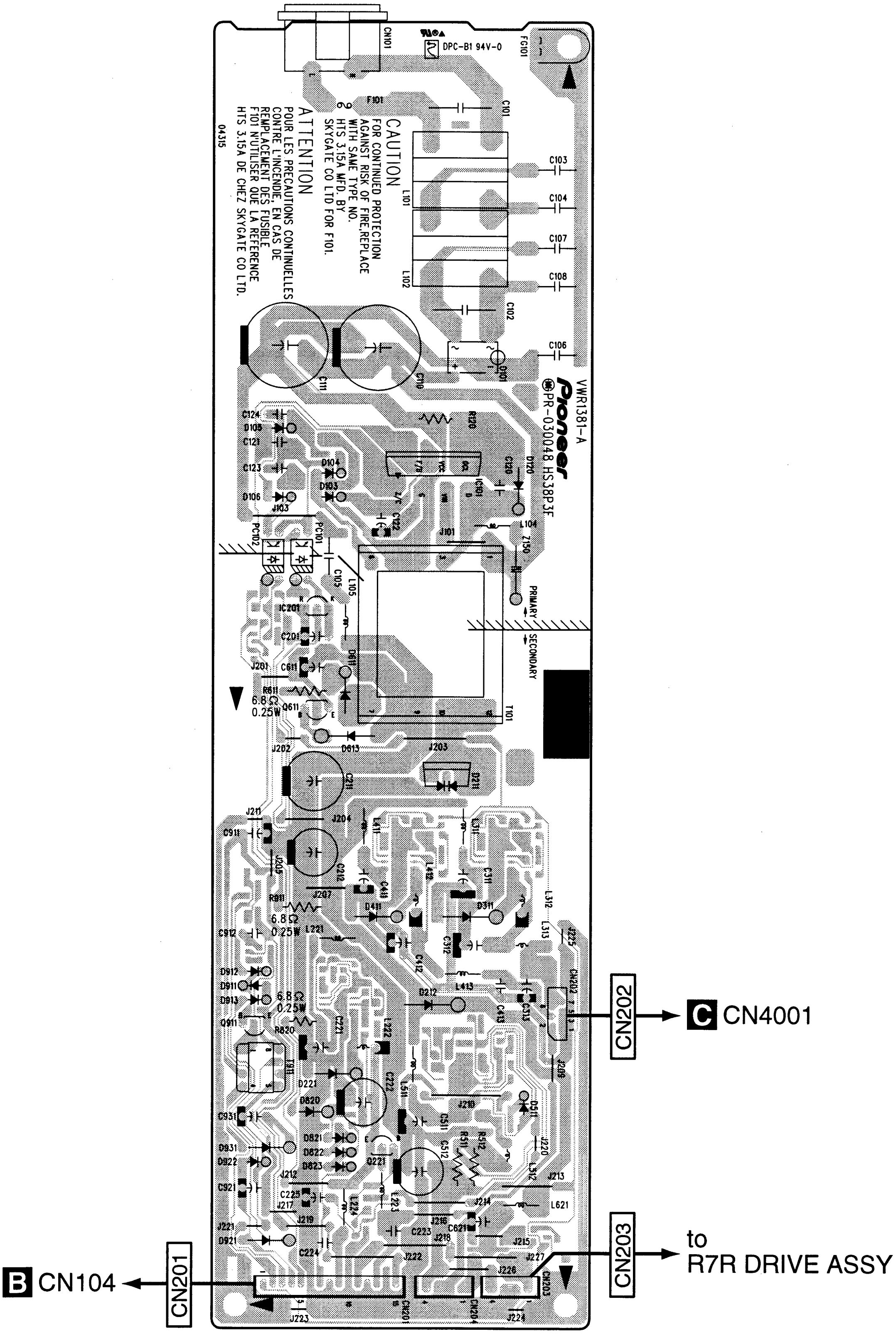
(VNP1970-A)

4.6 POWER SUPPLY UNIT

SIDE A

H POWER SUPPLY UNIT

SIDE A


CN101
DPC-B1 94V-0
FG101
F101
C101
CAUTION
FOR CONTINUED PROTECTION
AGAINST RISK OF FIRE,REPLACE
WITH SAME TYPE NO.
HTS 3.15A MFD. BY
SKYGATE CO LTD FOR F101.
ATTENTION
POUR LES PRECAUTIONS CONTINUELLES
CONTRE L'INCENDIE, EN CAS DE
REMPLACEMENT DES FUSIBLE
F101 N'UTILISER QUE LA REFERENCE
HTS 3.15A DE CHEZ SKYGATE CO LTD.
04315
L101
L102
C102
C103
C104
C107
C108
C106
D101
C111
C110
VWR1381-A
Pioneer
PR-03004B HS38P3F
R120
C120
D120
IC101
C124
D105
C121
C123
D104
D103
D106
J103
C122
J101
L104
Z150
PC102
PC101
C105
L105
PRIMARY
SECONDARY
IC201
C201
J201
C611
D611
R611
6.8Ω
0.25W
Q611
T101
D613
J202
J203
C211
D211
J211
C911
J204
L411
L311
J205
C212
L412
C311
C411
L312
R911
J207
D411
D311
6.8Ω
0.25W
L313
J225
C912
L221
C412
C312
CN202
D912
D911
D913
6.8Ω
0.25W
D212
L413
C413
C313
Q911
R820
C221
L222
T911
D221
C222
J209
D820
L511
J210
D511
C931
C511
R511
R512
C512
J220
D821
D822
D823
D931
D922
Q221
L512
J213
C921
J212
C225
J217
L224
L223
J216
J214
L621
J219
J221
D921
C224
C223
J218
C621
J215
J227
J222
J226
CN203
CN201
CN204
J223
J224
CN202
C CN4001
B CN104
CN201
CN203
to
R7R DRIVE ASSY

H **H**

5. PCB PARTS LIST

NOTES: ● *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*

● *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

● *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω → 56 x 10^1 *→ 561 .... RD1/4PU*$\boxed{5}\boxed{6}\boxed{1}$*J*
47k Ω → 47 x 10^3 *→ 473 .... RD1/4PU*$\boxed{4}\boxed{7}\boxed{3}$*J*
0.5 Ω → R50 .... RN2H$\boxed{R}\boxed{5}\boxed{0}$*K*
1 Ω → 1R0 .... RS1P$\boxed{1}\boxed{R}\boxed{0}$*K*

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω → 562 x 10^1 *→ 5621 .... RN1/4PC*$\boxed{5}\boxed{6}\boxed{2}\boxed{1}$*F*

LIST OF ASSEMBLIES

Mark	No. Description	Part No.
NSP	1..FLKB ASSY	VWM2256
	2..FLKY ASSY	VWG2489
	2..KIRB ASSY	VWG2490
	2..FRJB ASSY	VWV2004
	2..DVJB ASSY	VWV2006
	1..TUNB ASSY	VWV2003
	1..MAIN ASSY	VWV2012
	1..JCKB ASSY	VWV2031
	1..SDEB ASSY	VWV2033
⚠	1..POWER SUPPLY UNIT	VWR1381

A TUNB ASSY

SEMICONDUCTORS

Mark	No. Description	Part No.
	IC302	TDA9818TS
	Q302, Q308, Q319	2SA1576A
	Q300, Q304, Q306, Q307	2SC4081
	Q310, Q312	2SC4082
	Q305, Q315	DTA124EUA
	Q311	RN1903
	Q301	RN4903
	Q303, Q313	UMF21N
	D300	1SS355
	D302	1SS356
	D301	UDZS33B

COILS AND FILTERS

Mark	No. Description	Part No.
	L304 INDUCTOR	ATH1109
	L301, L303, L306 INDUCTOR	CTF1399
	L316	LCKAW330J2520
	L305	LCKAWR22J2520
	L311, L314	LCKAWR47J2520
	L307	LCYA150J2520
	L309	LCYAR68J2520
	F306 SAW FILTER	VTF1177
	F305 SAW FILTER	VTF1179
	F304 IF TRAP FILTERVTF1180	
	F303 IF TRAP FILTER	VTF1181
	F301 TRAP FILTER	VTF1183
	L315 VCO COIL	VTL1164

CAPACITORS

Mark	No. Description	Part No.
	C306	CCSRCH102J50
	C333, C345	CCSRCH150J50
	C339	CCSRCH220J50
	C343	CCSRCH270J50
	C315, C316	CCSRCH330J50
	C325	CCSRCH7R0D50
	C344	CCSRUJ4R0C50
	C301	CEAT100M50
	C308	CEAT102M6R3
	C303	CEAT330M25
	C313, C324	CEAT471M6R3
	C336, C337	CKSQYB225K10
	C332, C334, C335, C340, C341	CKSRYB102K50
	C322, C323, C327	CKSRYB103K50
	C329	CKSRYB104K16
	C304, C305, C328, C331	CKSRYB222K50
	C338	CKSRYB224K10
	C307, C326, C330	CKSRYF104Z25
	C311	CKSRYF104Z50

RESISTORS

Mark	No. Description	Part No.
	R309	RS1/10S0R0J
	R305	RS1/10S150J
	VR300 (10k)	VCP1156
	Other Resistors	RS1/16S###J

OTHERS

Mark	No. Description	Part No.
	CN300 19P SOCKET	AKP7073
	300 SCREW PLATE	VNE1948
	U301 TV TUNER PACK	VXF1023

B JCKB ASSY

SEMICONDUCTORS

Mark	No. Description	Part No.
	IC504	BA4558F-HT
	IC204	BR24L32F-W
	IC801	LA7213
	IC501	LA73026AV
	IC701	LA73033M
	IC702	LC75342M
	IC806-IC808	MM1501XN
	IC703	MM1504XN
	IC503	MM1511XN
⚠	IC101	MM1565AF
⚠	IC103	NJM78M09DL1A
	IC202	PEG035B
⚠	IC102	PQ1K333M2ZP
	IC201	PST3245
	IC203	RS5C372A
	IC803	TA1287FG
	IC205	TC74HCT7007AF

Mark No. Description	Part No.
IC500, IC502	TC7W53FU
IC805	TC7WH123FU
IC104	TC7WU04FU
Q502, Q708-Q710, Q803	2SA1576A
Q805-Q808	2SA1576A
Q107	2SA1577
Q102	2SB1238X
Q106	2SC1740S
Q101, Q103	2SC2411K
Q104, Q110, Q208, Q209	2SC4081
Q504-Q506	2SC4081
Q108	2SC4097
Q206	2SD2114K
Q109, Q203, Q205, Q804	DTA124EUA
Q112, Q204, Q207, Q801	DTC124EUA
Q702	HN1B04FU
Q111	HN1C01FU
Q500, Q501, Q703	HN1C03FU
Q202, Q515, Q516	RN1901
Q507, Q509, Q511, Q705, Q802	RN2903
Q105, Q200, Q201, Q503	RN4903
Q513, Q514, Q704, Q707	RN4903
Q100	UMF21N
D101	1SR154-400
D203	1SS352
D102, D201, D205, D500, D504	1SS355
D515, D705, D706	1SS355
D200, D501-D503, D517	DAN217U
D206, D532, D534	DAP202U
D505-D514, D522-D529, D531	DF3A5.6FU
D707-D709	DF3A5.6FU
D104, D202, D516	RB501V-40
D103	UDZS12(B)
D652	UDZS5R1(B)

COILS AND FILTERS

L101	LAU100J
L701-L703	LAU220J
L704	LAU2R2J
L102	LAU470J
L801	LCYA220J2520
L100	LTA102J
L200	VTL1081

SWITCHES AND RELAYS

RY500	VSR1017

CAPACITORS

C153, C239	CCSRCH100D50
C205, C226-C228, C718	CCSRCH101J50
C759-C761, C817, C819	CCSRCH101J50
C212, C504, C505, C529, C531	CCSRCH102J50
C771, C775, C779	CCSRCH180J50
C563, C564	CCSRCH220J50
C139, C547, C548, C814, C815	CCSRCH221J50
C162, C163, C230, C244	CCSRCH270J50
C770, C774, C778	CCSRCH390J50
C225, C231, C232, C713, C789	CCSRCH470J50
C791	CCSRCH470J50
C506-C509, C511, C512, C514	CCSRCH471J50
C516, C526, C527, C570, C571	CCSRCH471J50

Mark No. Description	Part No.
C574, C575, C741, C742	CCSRCH471J50
C159	CCSRCH561J50
C780	CCSRCH680J50
C215	CCSRCH681J50
C129, C130, C133, C134, C148	CEAL101M10
C164	CEAL101M10
C137	CEAL101M6R3
C150	CEAL220M16
C553, C554, C556, C557	CEANP100M16
C560, C561	CEANP100M16
C140, C157, C746-C749	CEAT100M50
C752-C757, C821-C823	CEAT100M50
C826-C828	CEAT100M50
C107, C122, C200, C213, C235	CEAT101M10
C543, C651, C723, C731, C736	CEAT101M10
C767, C820, C829, C834	CEAT101M10
C124, C142, C144, C510, C539	CEAT101M16
C544, C739, C743, C830	CEAT101M16
C524, C537, C706-C708, C729	CEAT102M6R3
C737	CEAT102M6R3
C558	CEAT1R0M50
C517-C522, C533, C534	CEAT220M25
C542, C750, C751	CEAT221M16
C812	CEAT3R3M50
C738, C740	CEAT470M16
C126	CEAT471M16
C835	CEVW101M10
C709	CEVW220M6R3
C110	CKSQYB225K10
C160, C224, C523, C538, C555	CKSRYB103K50
C559, C562, C567, C765	CKSRYB103K50
C222, C223, C701, C703, C705	CKSRYB104K16
C710, C712, C714-C717	CKSRYB104K16
C719-C722, C724, C726, C727	CKSRYB104K16
C804-C806, C836-C838	CKSRYB104K16
C568, C781, C784	CKSRYB105K10
C109, C115, C116, C119-C121	CKSRYF104Z25
C123, C125, C127, C128	CKSRYF104Z25
C131, C132, C135, C136, C141	CKSRYF104Z25
C143, C147, C149, C152	CKSRYF104Z25
C154-C156, C158, C161	CKSRYF104Z25
C203, C204, C214, C216, C217	CKSRYF104Z25
C229, C236, C243, C532	CKSRYF104Z25
C540, C541, C550, C551, C569	CKSRYF104Z25
C652, C728, C730, C744, C745	CKSRYF104Z25
C766, C782, C783, C785-C788	CKSRYF104Z25
C801, C807, C809, C813, C816	CKSRYF104Z25
C818	CKSRYF104Z25
C209-C211, C220, C221	CKSRYF105Z10
C233, C234, C240, C525, C545	CKSRYF105Z10
C552	CKSRYF105Z10

RESISTORS

R578	RS1/10S75R0F
R831	RS1/16S1001F
R833, R841	RS1/16S1201F
R835	RS1/16S1801F
R837, R839	RS1/16S2001F
R842	RS1/16S2200F
R744, R747, R750	RS1/16S6800F

Mark	No. Description	Part No.
	R519, R542, R543, R548, R560	RS1/16S75R0F
	R565, R576, R594-R596	RS1/16S75R0F
	R712, R713, R718, R734-R736	RS1/16S75R0F
	R752	RS1/16S75R0F
	Other Resistors	RS1/16S###J

OTHERS

Mark	No. Description	Part No.
	CN202 9P FFC CONNECTOR	52045-0945
	CN705 13P FFC CONNECTOR	52045-1345
	CN201 19P FFC CONNECTOR	52045-1945
	CN401 19P PLUG	AKP7062
	CN104 CONNECTOR	B15B-PH-K
	CN105, CN703 CONNECTOR 2P	B2B-PH-K
	JA651 OPT.LINK OUT 8MB/S	JFJ1001
	JA200 JACK	RKN1004
	BT200 LITHIUM BATTERY (CR2032)	VEM1034
	JA501, JA502	VKB1157
	JA700 JACK	VKB1193
	CN402 CONNECTOR	VKN1191
	CN702 CONNECTOR	VKN1200
	CN701 32P FFC CONNECTOR	VKN1263
	ST200 BATTERY SOCKET	VKX1016
	KN701-KN703 WRAPPING TERMINAL	VNF1084
	X100 (4.433619MHz)	VSS1176
	X201 (32kHz)	VSS1197
	X200 (10MHz)	VSS1202

C MAIN ASSY

SEMICONDUCTORS

Mark	No. Description	Part No.
	IC3101	AK5381VT
	IC2301	BA7655AF
	IC5204	K4S161622D-TC80
	IC1101	K4S281632E-TC75
	IC1401	K4S561632E-TC75
	IC1001	M65673WG-A
	IC5002	MM1562FF
⚠	IC4007	MM1603DP
	IC1301	MT48LC4M32B2TG-7
⚠	IC4004, IC4006	NJM2872F05
	IC4206, IC5301, IC5321	NJU7013F
	IC3201	PCM1742KE
⚠	IC4008	PQ015YZ01ZP
⚠	IC4002	PQ070XZ02ZP
	IC4003	PST3428U
	IC4005	PST3809U
	IC3301	SM5950AM
	IC3402	SM8707KV
	IC2211, IC2302, IC4101	SN74AHC2G53HDCT
	IC3001	TC74LCX541FT
	IC3002	TC74VHC14FT
	IC5341	TC74VHC157FT
	IC3403, IC4205, IC5322	TC7WHU04FU
	IC3251	UPC4570G2
	IC5101	UPD72852AGB-8EU-A
	IC5202	UPD72893BGD-LML
	IC1102	VYW2179
	IC1201	W986416DH-6
	Q2101-Q2105, Q2201, Q2203, Q2301	2SA1576A
	Q2312	2SA1576A
	Q4000	2SC2411K
	Q2202, Q2222, Q2241	2SC4081
	Q2302, Q2311	DTC114EUA
	Q2402, Q2403	HN1B04FU
	Q3201, Q3202	RN1903
	Q1102	RN4982
	Q2001	UMF21N
	D3001, D3002, D3101-D3104	1SS355
	D5321	HVC359
	D5322	HVC362
	D4201	MA2ZV05
	D1111	RB521S-30

COILS AND FILTERS

Mark	No. Description	Part No.
	F3102, F3401-F3403, F4201, F5101	DTF1069
	L1001-L1009, L1101, L1102, L1301	DTL1106
	L1401, L3301, L5501-L5505	DTL1106
	L5507, L5508	DTL1106
	L5301, L5321	LCYA100J2520
	L4202	LCYA1R2J2520
	F3201	VTF1096
	L2101	VTL1067
	L4201	VTL1079
	L5103-L5106	VTL1082

CAPACITORS

Mark	No. Description	Part No.
	C5311, C5329	CCSRCH100D50
	C3253, C3258	CCSRCH101J50
	C5105	CCSRCH271J50
	C5325, C5327	CCSRCH330J50
	C3207	CCSRCH331J50
	C4208	CCSRCH390J50
	C5131-C5138	CCSRCH4R0C50
	C5326	CCSRCH5R0C50
	C3254, C3257	CCSRCH681J50
	C5121, C5122	CCSRCH8R0D50
	C2208, C2317, C4034, C5322	CEVW100M16
	C3251, C3255, C4001, C4002, C4004	CEVW101M16
	C4029, C4037	CEVW101M16
	C2101, C2221, C2405, C3201, C3204	CEVW101M6R3
	C3206	CEVW101M6R3
	C2301	CEVW220M6R3
	C1060, C1061, C4022	CEVW221M4
	C3106	CEVW2R2M50
	C5321	CEVW470M16
	C2308, C3102, C3107, C4003, C5341	CEVW470M6R3
	C5301	CEVW4R7M35
	C2220, C2243	CEVWNP100M10
	C1031, C1032, C1503-C1506	CKSQYB104K16
	C2204, C4206, C5309	CKSQYB105K10
	C1901, C4014, C4019, C4033, C5006	CKSQYB225K10
	C1004, C1012, C1014, C1029, C1034	CKSRYB102K50
	C1040, C1044, C1049, C1051	CKSRYB102K50
	C1110, C1111, C1207, C1208, C1307	CKSRYB102K50
	C1311, C1313, C1407, C1408, C3303	CKSRYB102K50
	C3408	CKSRYB102K50
	C1003, C1027, C1037, C1052, C1109	CKSRYB103K50
	C1206, C1305, C1308, C1310, C1406	CKSRYB103K50
	C2305, C3003, C3004, C4018, C4020	CKSRYB103K50
	C4207, C5214, C5222, C5224	CKSRYB103K50

Mark No. Description	Part No.
C1508-C1510, C2311, C4104, C5306	CKSRYB104K16
C4103	CKSRYB223K50
C5328	CKSRYB473K25
C2202	CKSRYB563K16
C1002, C1005, C1007-C1010, C1016	CKSRYF104Z25
C1018, C1019, C1021-C1023	CKSRYF104Z25
C1025, C1026, C1028, C1030, C1035	CKSRYF104Z25
C1038, C1041, C1042, C1047, C1102	CKSRYF104Z25
C1105, C1106, C1114, C1202, C1204	CKSRYF104Z25
C1302, C1304, C1312, C1402, C1404	CKSRYF104Z25
C2102-C2106, C2201, C2206, C2210	CKSRYF104Z25
C2222, C2241, C2302, C2306, C2319	CKSRYF104Z25
C2406, C2407, C3006, C3101, C3105	CKSRYF104Z25
C3108, C3202, C3203, C3205, C3252	CKSRYF104Z25
C3256, C3302, C4006-C4008, C4010	CKSRYF104Z25
C4012, C4013, C4017, C4021	CKSRYF104Z25
C4024-C4026, C4032, C4202, C4203	CKSRYF104Z25
C4209, C5113, C5118, C5120	CKSRYF104Z25
C5125-C5127, C5204, C5215, C5218	CKSRYF104Z25
C5225-C5228, C5230, C5308, C5310	CKSRYF104Z25
C5323, C5342, C5343	CKSRYF104Z25
C1001, C1006, C1048, C1103, C1107	CKSRYF105Z10
C1203, C1205, C1209, C1303, C1306	CKSRYF105Z10
C1309, C1403, C1405, C1409, C3001	CKSRYF105Z10
C3404-C3407, C4027, C4030, C4105	CKSRYF105Z10
C4107, C4201, C4401, C4501, C5110	CKSRYF105Z10
C4028 (4.7u/6.3V)	DCH1200
C3402, C3403, C4015 (10u/10V)	VCG1045
VC4201 (10pF)	VCM1012

RESISTORS

Mark No. Description	Part No.
R1025, R1026, R1042-R1046	RAB4CQ103J
R1048-R1051, R1054, R1068, R1069	RAB4CQ103J
R1072, R1073, R5218-R5221	RAB4CQ103J
R5229, R5230, R5247, R5249-R5252	RAB4CQ103J
R5255, R5258, R5259, R5273-R5275	RAB4CQ103J
R5289, R5290	RAB4CQ103J
R1408-R1411	RAB4CQ220J
R4401, R4404, R4410, R4416, R4417	RAB4CQ223J
R4423, R4502, R4506, R4512	RAB4CQ223J
R4518, R4519, R4525	RAB4CQ223J
R1114-R1117, R4405-R4408, R4436	RAB4CQ330J
R1303-R1310, R1404-R1407	RAB4CQ560J
R1203-R1206	RAB4CQ680J
R5103	RN1/16SE5101D
R5108	RN1/16SE9101D
R1207, R1502, R1507, R2017, R3002	RS1/10S0R0J
R3102, R3201, R3252, R4001, R4006	RS1/10S0R0J
R4009, R4014, R4016, R4108, R4109	RS1/10S0R0J
R5209, R5322	RS1/10S0R0J
R4019	RS1/10S1001D
R5321	RS1/10S101J
R1501	RS1/10S2202F
R4020	RS1/10S5600D
R4013	RS1/16S1001F
R3254, R3266	RS1/16S1002F
R4012	RS1/16S1200F
R3253, R3265	RS1/16S1201F
R4011	RS1/16S1501F
R1021, R1023	RS1/16S2201F
R3251, R3269	RS1/16S2202F
R2105, R2106, R2111, R2112, R2115	RS1/16S3300F
R4018	RS1/16S3600D
R5104-R5107	RS1/16S56R0D
Other Resistors	RS1/16S###J

OTHERS

Mark No. Description	Part No.
CN5102 7P FFC CONNECTOR	VKN1411
CN4401 40P FFC CONNECTOR	VKN1811
CN1901 7P FFC CONNECTOR	VKN1812
CN4001 8P FFC CONNECTOR	VKN1813
CN3001 24P FFC CONNECTOR	VKN1814
CN2001 32P FFC CONNECTOR	VKN1815
KN3 EARTH METAL FITTING	VNF1109
X4201 (27.000MHz)	VSS1146
X5101 (24.576MHz)	VSS1184
X4102 VCXO (27MHz)	VSS1195

D FLKY ASSY

SEMICONDUCTORS

Mark No. Description	Part No.
IC1001	PT6315

COILS AND FILTERS

Mark No. Description	Part No.
L1001	LAU220J

SWITCHES AND RELAYS

Mark No. Description	Part No.
S1001, S1002, S1004-S1009	VSG1024

CAPACITORS

Mark No. Description	Part No.
C1012	CEJQ101M6R3
C1010	CEJQ220M35
C1001-C1004, C1020	CKSRYB103K50
C1006, C1009, C1013	CKSRYF104Z25
C1011	CKSRYF105Z10

RESISTORS

Mark No. Description	Part No.
Other Resistors	RS1/16S###J

OTHERS

Mark No. Description	Part No.
CN1001 19P FFC CONNECTOR	9607S-19F
V1001 FL TUBE	VAW1081
CN1002 CONNECTOR	VKN1183
FL HOLDER	VNF1129

E KIRB ASSY

SWITCHES AND RELAYS

Mark No. Description	Part No.
S1201-S1203	VSG1024

CAPACITORS

Mark No. Description	Part No.
C1204	CKSRYF104Z25

RESISTORS

Mark No. Description	Part No.
Other Resistors	RS1/16S###J

OTHERS

Mark No. Description	Part No.
IC1201 REMOTE RECEIVER UNIT	RPM7140-H9
CN1201 CONNECTOR	VKN1183

F FRJB ASSY

CAPACITORS

Mark No. Description	Part No.
C1308, C1309	CCSRCH471J50

RESISTORS

Mark	No.	Description	Part No.
	R1501, R1502		RS1/10S0R0J
	Other Resistors		RS1/16S###J

OTHERS

	CN1301	13P FFC CONNECTOR	52492-1320
	JA1301	YC CONNECTOR (VERTI)	VKB1190
	JA1302	3P JACK (VERTIACAL)	VKB1206
	KN1301	WRAPPING TERMINAL	VNF1084

G SDEB ASSY

SEMICONDUCTORS

	IC401		MSP3417G
	Q401, Q404-Q406		2SA1576A
	Q402, Q403		2SC4081
	D401		1SR154-400
	D400		1SS355

COILS AND FILTERS

	L400		CTF1399
	L402, L403		LCYA150J2520
	L404		LCYA4R7J2520
	L401		LCYA8R2J2520

CAPACITORS

	C421, C429, C433, C434, C437		CCSRCH102J50
	C424		CCSRCH121J50
	C431		CCSRCH181J50
	C439, C440		CCSRCH220J50
	C423		CCSRCH470J50
	C426, C428		CCSRCH560J50
	C430		CCSRCH680J50
	C427, C432		CCSRCJ3R0C50
	C408, C416		CEAT100M50
	C403, C415, C417		CEAT101M10
	C400, C406, C412		CEAT101M16
	C410		CEAT3R3M50
	C414, C420, C436		CKSRYB103K50
	C419, C435		CKSRYB472K50
	C404, C405, C407, C409, C411		CKSRYF104Z25
	C413, C418, C422, C425		CKSRYF104Z25
	C438		CKSRYF105Z10

RESISTORS

	R406, R407		RS1/10S0R0J
	R402		RS1/10S100J
	Other Resistors		RS1/16S###J

OTHERS

	CN403	CONNECTOR	VKN1191
	401, 402	SCREW PLATE	VNE1948
	X400	(18.432MHz)	VSS1189

H POWER SUPPLY UNIT

There is no service part.

I DVJB ASSY

RESISTORS

	Other Resistors		RS1/16S###J

OTHERS

Mark	No.	Description	Part No.
	JA1401	DV-TERMINAL	VKB1207
	CN1401	CONNECTOR	VKN1183

6. ADJUSTMENT

6.1 TUNB ASSY ADJUSTMENT

* It is not necessary to adjust the ASSY normaly when exchanging the ASSY. But the adjustment is necessary when exchanging the Tuner Module and IC302 VIF/SIF IC.

No.	Adjustment Name	Adj. Point	Measurement Point	Adjustment Value	Adjustment State
1	VCO freerun frequency (AFC voltage) adjustment	L315	The solder land named "AFT" (upper side of JCKB ASSY)	1.90V ± 0.20V Note1	Terrestrial tuner input /through output. Any channel, RF Input ≥ 60dBu System = B/G, I or D/K AFT = OFF Note1
2	AGC start point adjustment	VR300	The solder land named "AGC" (upper side of JCKB ASSY)	3.80V ± 0.20V	Terrestrial tuner input Ch = E9(203.25MHz), Video= Blackburst RF Input = 60.0 ± 1.0dBu System = B/G, I or D/K

Note 1 : The adjustment spec. is defined without the thermal drift after the power on.
Therefore, start the adjustment at least 10 minutes after the power on.

A TUNB ASSY

SIDE A

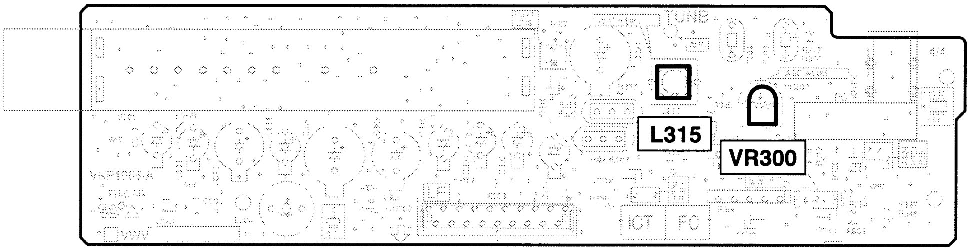


Fig.1 Adjustment Points (TUNB ASSY)

B JCKB ASSY

SIDE A

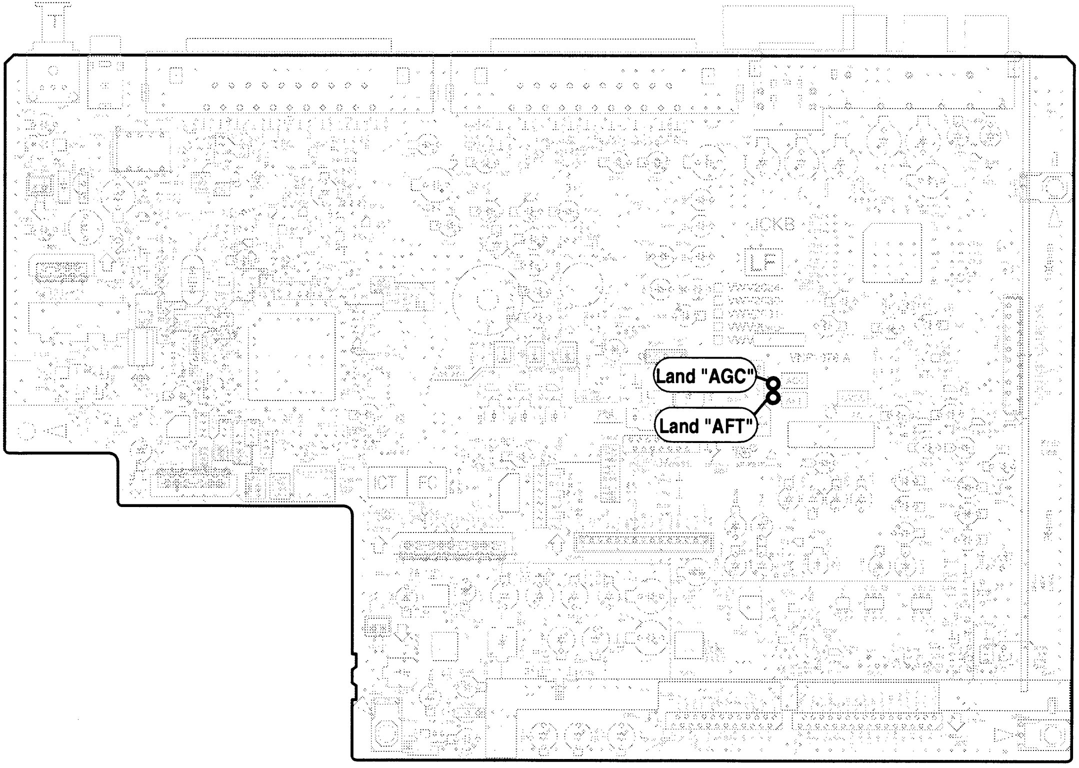


Fig.2 Measurement Points (JCAB ASSY)

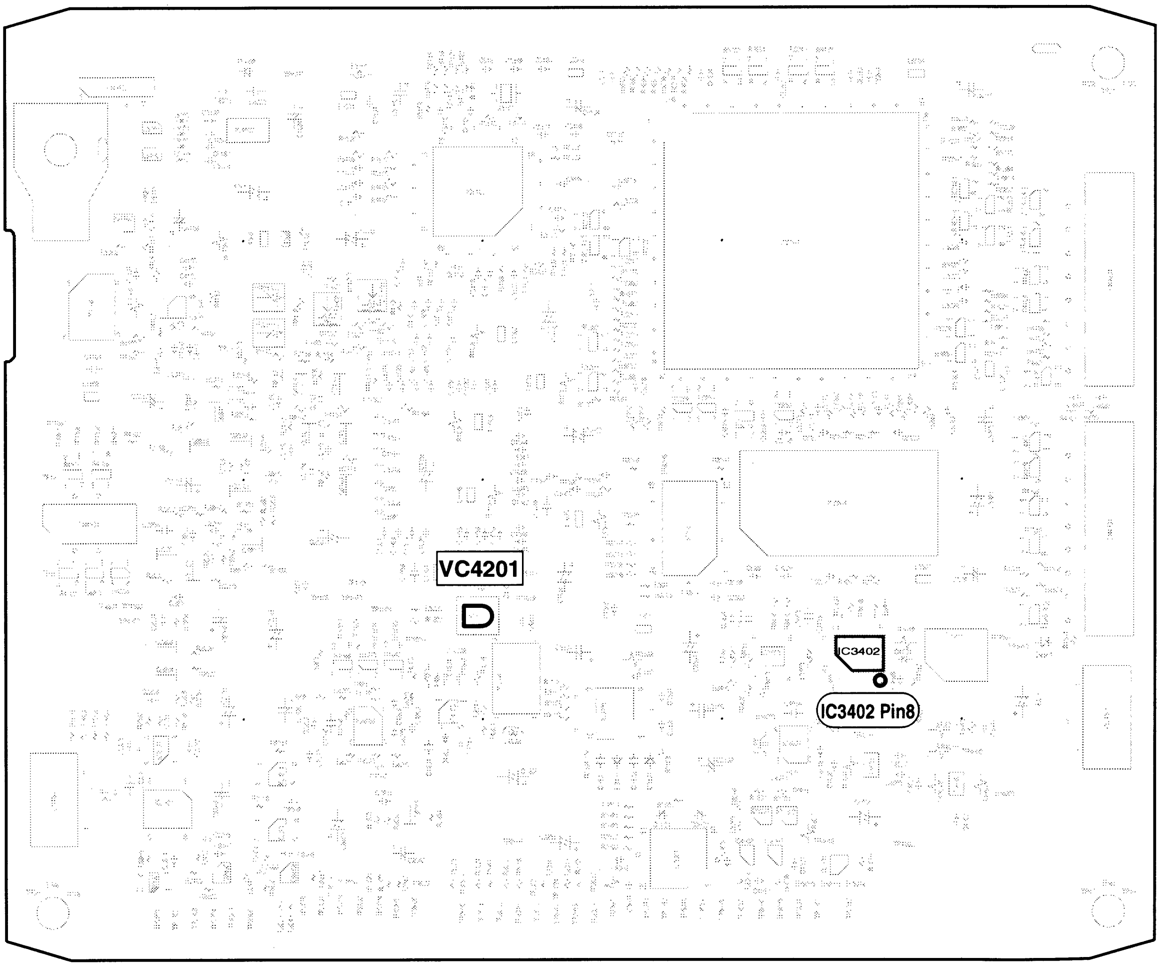
6.2 MAIN ASSY ADJUSTMENT

* It is not necessary to adjust the ASSY normaly when exchanging the ASSY, but confirm the data.

No.	Adjustment Name	Adj. Point	Measurement Point	Adjustment Value	Adjustment State
1	Master clock free-running adjustment (Clock system adjustment)	VC4201	MAIN ASSY IC3402 Pin8 (XTO) (SM8707KV)	27.000000MHZ ± 130Hz	No signal input

C MAIN ASSY

SIDE A



7. GENERAL INFORMATION

7.1 DIAGNOSIS

■ Service Diagnosis List

7.1.1 CPRM ID NUMBER AND DATA SETTING

The Setting is necessary

- " CPRM ERR" is displayed on the FL display immediately after the power is turned on or in Stop mode.
- When the MAIN ASSY , DRIVE ASSY or the FLASH ROM is exchanged.

7.1.2 MODEL SETTING

7.1.3 DOWNLOAD METHOD

The Setting is necessary

- When the MAIN ASSY is replaced.
- When the JCKB ASSY is replaced.
- When the MAIN ASSY and JCKB ASSY is replaced.

7.1.4 SERVICE MODE

[First Screeen] (Version information, etc)
    [Sub Screen] (Result of error-rate measurement : Video mode/VR mode)

[Second Screen] (ATA/ATAPI debug screen)
    [Sub Screen 3] (writer maintenance information of ATA/ATAPI DEBUG OSD)
    [Sub Screen 4] (ATA/ATAPI DEBUG OSD_LD degradation judgement)

[Fourth Screen] (VR-recording error log)
    [Sub Screen 4] (Error log for VR recording)

[Fifth Screen] (Error log for VR playback)
    [Sub Screen 2] (Error log for VR playback)

7.1.5 DV DEBUG MODE

[Third Screeen] (DV debug information)

7.1.6 ERROR RATE MEASUREMENT

Only Video mode measurement

7.1.7 VIDEO ADJUSTMENT FOR SPECIFIC AREA

Purposes:

Depending on the area, jitter may appear in a picture received by the tuner, as conditions of signals received by the tuner are different from area to area. To correct this kind of problem, the function of the System Codec AVIO control section for adjusting signals received by the tuner can be used.

7.1.8 AGING MODE

7.1.1 CPRM ID NUMBER AND DATA SETTING

■ Entering the ID Number and ID Data for DVD Recorder

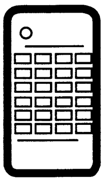
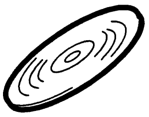
For the DVD recorder,it is necessary with the recoding/playback of DVD–RW disc to set an individual number (ID number) and ID data to each recorder. If the number and data are not set correctly with the following procedure, operations in the future may not be guaranteed. You will find the ID number to be set on the ID label on the rear panel.

Important: If no ID label is found on the rear panel, write down the specified ID number by checking it according to "How to confirm the ID number" shown below.

■ The Input is Necessary When:

- " CPRM ERR" is displayed on the FL display immediately after the power is turned on or in Stop mode.
- When the MAIN ASSY , DRIVE ASSY or the FLASH ROM is exchanged.

JIGS AND MEASURING INSTRUMENTS

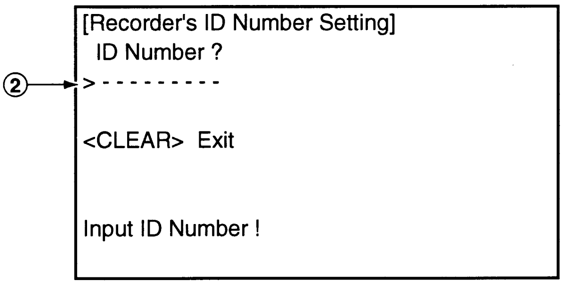
 Service Remote Control Unit (GGF1381)	 DVD Recorder Data Disc (GGV1179) (*) Refer to P150.

Note:
Be sure to enter the ID number in Stop mode.
Use the service remote control (GGF1381) for operations. Only opening/closing of the tray are performed from the player.
The ID data disc is swept out automatically after the recorder have read the data from it.

■ How to Input the ID Number and ID Data

① To enter the input mode, press ESC + STEREO sequentially in a status with no ID number set, such as after FLASH-ROM downloading.

② As number input is enabled when the unit enters the input mode, input the 9-digit ID number.
(The entered number is also displayed on the FL display.)

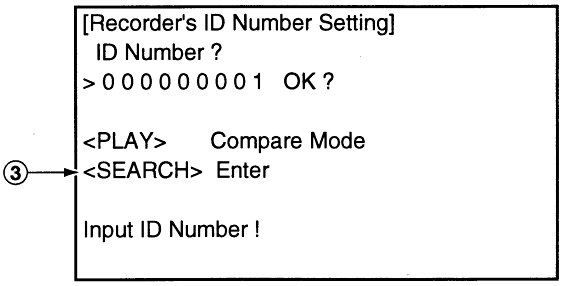


```
[Recorder's ID Number Setting]
 ID Number ?
>---------

<CLEAR> Exit


Input ID Number !
```

③ After inputting the number, press SEARCH to register the ID number.

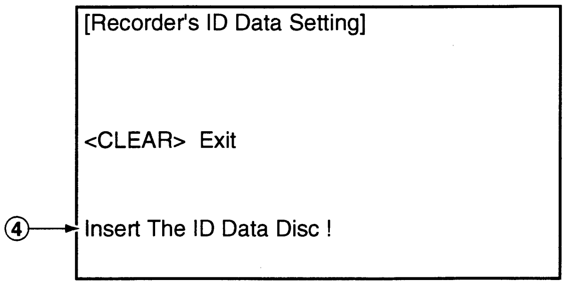


```
[Recorder's ID Number Setting]
 ID Number ?
>000000001  OK?

<PLAY>     Compare Mode
<SEARCH>  Enter

Input ID Number !
```

④ When the ID number has been registered, the unit enters the ID data input mode. (The FL display indicates "INSERT ID.")
In this condition, place the ID data disc on the tray and close the tray using the CLOSE key "■/▲" on the player.

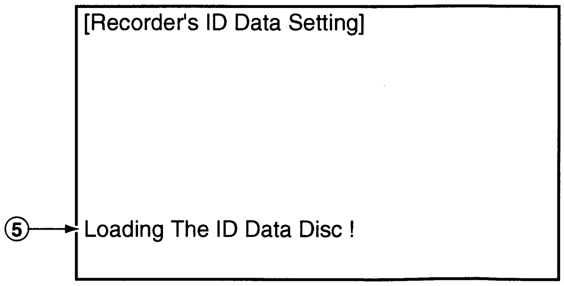


```
[Recorder's ID Data Setting]


<CLEAR> Exit


Insert The ID Data Disc !
```

⑤ While the data are being read, the message shown in the figure at left is displayed on the screen.
(The FL display indicates "LOAD ID.")

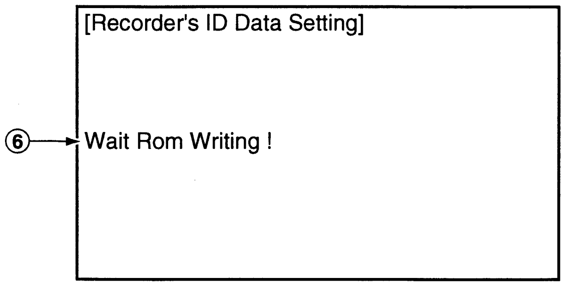


```
[Recorder's ID Data Setting]




Loading The ID Data Disc !
```

⑥ When the ID data have been read, the data are written to the FLASH-ROM.
(The FL display indicates "WRITE ID.")

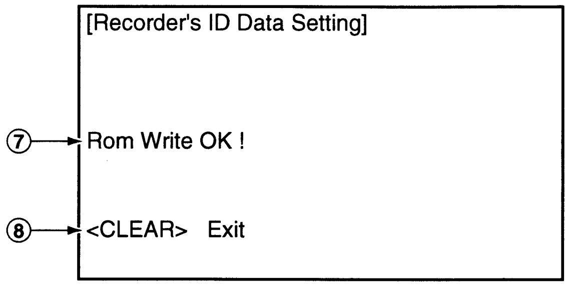


[Recorder's ID Data Setting]

Wait Rom Writing !

⑦ When the ID data have been written to the FLASH-ROM, the message "Rom Write OK" is displayed on the screen.
(The FL display indicates "ID DATA OK.")

⑧ After confirming this message, press CLEAR to exit the input mode.



[Recorder's ID Data Setting]

Rom Write OK !

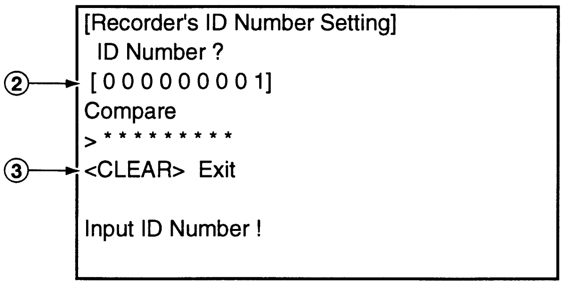
<CLEAR> Exit

How to Confirm the ID Number

① Press ESC + STEREO sequentially with an ID number already set, and the unit enters the ID number confirmation mode.

② The set ID number is displayed on the screen (and on the FL display), permitting you to confirm it.

③ To exit this mode, press CLEAR.



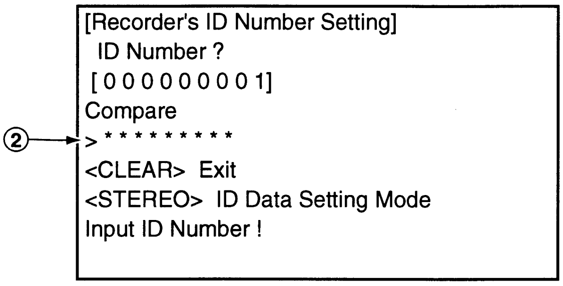
[Recorder's ID Number Setting]
ID Number ?
[0 0 0 0 0 0 0 0 1]
Compare
> * * * * * * * * *
<CLEAR> Exit

Input ID Number !

How to Clear the ID Number

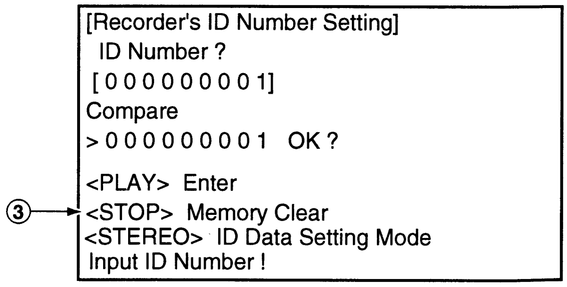
① Press ESC + STEREO sequentially with an ID number already set, and the unit enters the ID number confirmation mode.

② Input the same number as the ID number you have set.



[Recorder's ID Number Setting]
ID Number ?
[0 0 0 0 0 0 0 0 1]
Compare
> * * * * * * * * *
<CLEAR> Exit
<STEREO> ID Data Setting Mode
Input ID Number !

③ After inputting the number, press STOP.
Only when the entered number matches the set ID number, the ID number is cleared and the unit exits this mode.
If the numbers do not match, you must return to step 2.
(STOP is not accepted until 9 digits are entered.)



[Recorder's ID Number Setting]
ID Number ?
[0 0 0 0 0 0 0 0 1]
Compare
> 0 0 0 0 0 0 0 0 1 OK ?
<PLAY> Enter
<STOP> Memory Clear
<STEREO> ID Data Setting Mode
Input ID Number !

7.1.2 MODEL SETTING

• The Setup is Necessary When :

a) When the MAIN Assy is replaced
b) When the JCKB Assy is replaced
c) When the MAIN Assy and JCKB Assy are replaced

Note : Make sure of setting the correct number.

• How to Setup the Model

1) After power on, the following screen is displayed on TV monitor.
Press " 31 " by using the remote control unit for service(GGF1381).

```
[ Recorder 's  Model  Setting]
 Input the number by using the remote for Service.

 > --

 Input  No.        Model
 [     31        :  DVR-320-S         ]
```

2) After 1), the following screen is displayed on TV monitor.
Press " 012 " by using the remote control unit for service.

```
[ Recorder 's  Type  Setting]
 Input the number by using the remote for Service.

 > ---                    (Type  -- ,   Region  No.  -)

 Input  No.         Type
 [     01        :   WY        <Europe>            ]
 [     02        :   WV        <UK>                ]
```

The setting complete when OSD is disappeared.

3) Unplug the power cable.
4) Reset the recorder to all its factory settings.
   1. Make sure that the recorder is on.
   2. Press and hold [STOP] and press [STANDBY/ON] key on the front panel.
      The recorder turns off with all settings reset.
5) Enter the Service Mode and then confirm the Model Name " DVR-320/WY ".
   1. Make sure that the recorder is on.
   2. Press [ESC] then [DISP] keys by using the remote control unit for Service.

```
DVR-320/WY
  VERSION  :  2.* *
  SYSCON   :  RELEASE_44
              Rev    :1.3599.2.2        $
 TUFLCON   :  2.25    FLASH              OK
    DRIVE  :  DVD-RW DVR-107R            OK
              1.03                       OK
              DADL000219WL               OK

   DEVICE  :  PRISM-PLUS
   REGION  :  2
        C  :  * * * * * * * * *
   FLASH   :  32M
```

Notes :

1) After the setting complete, you can NOT CLEAR the seting data.
Make sure the pressing number.
2) " NG " is appeared on TV when unsuitable number is pressed.
In such a case, please unplug the power cable and plug it again. Then restart the model setting.

7.1.3 DOWNLOAD METHOD

- **The Download is Necessary When :**
  a) After model setting
  b) When "NG" is displayed at First screen (version information, etc)

[Notes]

Be sure NOT to turn off the unit during downloading.
If the unit is turned off during downloading, the SYSCON, TUFLCON, and DRIVE programs may not be properly rewritten, in which case the unit may not be able to initialize itself normally when turned on again. If that happens, repair the unit, as described below, then perform downloading again:

- In a case where the power to the unit was shut off during rewriting of the SYSCON program:
  The SYSCON program will not function properly if the power to the unit is forcibly shut off while the message "DOWNLOAD-1" is displayed on the FL display during downloading. If downloading of the programs from the disc or through serial communication becomes impossible, replace the FLASH ROM.
- In a case where the power to the unit was shut off during rewriting of the DRIVE program:
  The DRIVE program will not function properly if the power to the unit is forcibly shut off while the message "DOWNLOAD-2" is displayed on the FL display during downloading. If downloading of the programs from the disc or through serial communication becomes impossible, replace the DRIVE ASSY.
- In a case where the power to the unit was shut off during rewriting of the TUFLCON program (only for the flash-type TUFLCON microcomputers):
  The TUFLCON program will not function properly if the power to the unit is forcibly shut off while the message "DOWNLOAD-3" is displayed on the FL display during downloading. If downloading of the programs from the disc or through serial communication becomes impossible, replace the TUFLCON microcomputer.

1. DISC DOWNLOAD METHOD

- **How to Download**
  This is disc download method to save the initial setting data and user setting data.
  However, the following data is deleted after downloading by this method.
  * REC mode
  * Last channel (Before turn unit off)

1) Open a disc tray in the " DVD " function.
2) Put the download disc on the tray.
3) Press and hold a " STOP " button for playback,
   then press a " DISC NAVIGATOR " button on a front panel.
   - The disc tray closes automatically and the disc is loaded.
   - The disc tray opens automatically after loading.
4) Take out the Download Disc.
   - " DISC DWLD " is displayed on FL and download is started.
   - The display on FL changes to " DOWNLOAD-1 "
   - The display on FL changes to " DOWNLOAD-2 "
   - The display on FL changes to " DOWNLOAD-3 " (*)
   - After download is completed, the power turns off, and turns on and a disc tray closes automatically.
   * It takes for about 5 minutes until download is completed.
5) Press and hold a " ESC ", then press " DISP " on a test mode remote control unit for the release version confirmation.
6) Confirm a firmware release version.
7) Press " ESC " on a test mode remote control unit in order to exit the test mode.

(*) : " DOWNLOAD-3" is displayed only when the TuFL u-com is FLASH type.

2. Serial DOWNLOAD METHOD

[Notes]

This method is secondary way when the disc loading is impossible.

• JIGS

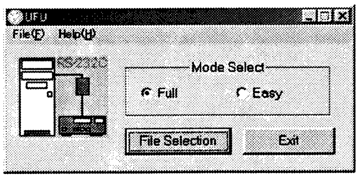
* PC with serial port
* RS232C straight cable
* RS232C I/F jig (GGF1348)
* 7P FFC (VDA1681)
* Download program (UFU.exe)
* Firmware

• Connection

PC ⇔ RS232C cable ⇔ RS232C I/F ⇔ 7P FFC ⇔ DVD Recorder

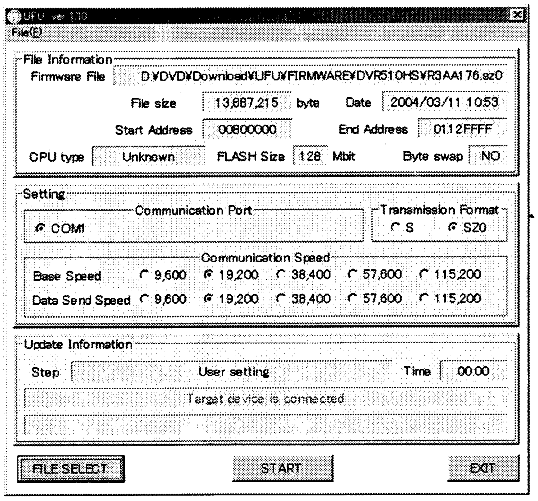
• How to Download

1) Connect the 232C I/F JIGS above way.
2) Turn on the PC and start the " UFU.exe ".



Mode Select: ● Full ○ Easy

3) Select the Firmware file. ("sz0" file)
4) Turn the DVD recorder on and start the download program.
" Target Device is connected" is appeared on the screen.



File Information

Firmware File: D:¥DVD¥Download¥UFU¥FIRMWARE¥DVR510HS¥R3AA176.sz0

File size: 13,887,215 byte

Date: 2004/03/11 10:53

Start Address: 00800000

End Address: 0112FFFF

CPU type: Unknown

FLASH Size: 128 Mbit

Byte swap: NO

Setting

Communication Port: ● COM1

Transmission Format: ○ S ● SZ0

Communication Speed

Base Speed: ○ 9,600 ● 19,200 ○ 38,400 ○ 57,600 ○ 115,200

Data Send Speed: ○ 9,600 ● 19,200 ○ 38,400 ○ 57,600 ○ 115,200

Update Information

Step: User setting

Time: 00:00

Target device is connected

5) Select the Communication Speed (Baud Rate)
   a) Base Speed 38,400
   b) Data Send Speed 115,200
6) START
   * Even if you click "START" button,
   sometimes "Communication Error" may come out one to twice, and download may fail.
   In this case, please click "START" again.
   * Other factors can be considerd if download fails 3 times or more.
   * And it takes about an hour for updating the firmware.

7.1.4 SERVICE MODE

For service operations, use the GGF1381 remote control unit for service.
The Service-mode screens consist of nine mode screens, which are classified into such rough categories as recording system and VR playback system, and their subscreens.

- **How to enter Service mode** : Press the ESC then DISP keys in turn while no GUI is displayed. The first screen (version information, etc.) shown below is displayed.
- **How to exit Service mode** : Press the ESC key.
- **How to advance to the next Service-mode screen**
  : While the first screen is displayed, press directly one of the keys 1-9. For service, use the keys 2, 4 or 5, as shown below.
- **How to advance to a subscreen within the same Service-mode screen**
  : Press the DIG/ANA key. Pressing the DIG/ANA key repeatedly will change the subscreens within the same Service-mode screen cyclically.

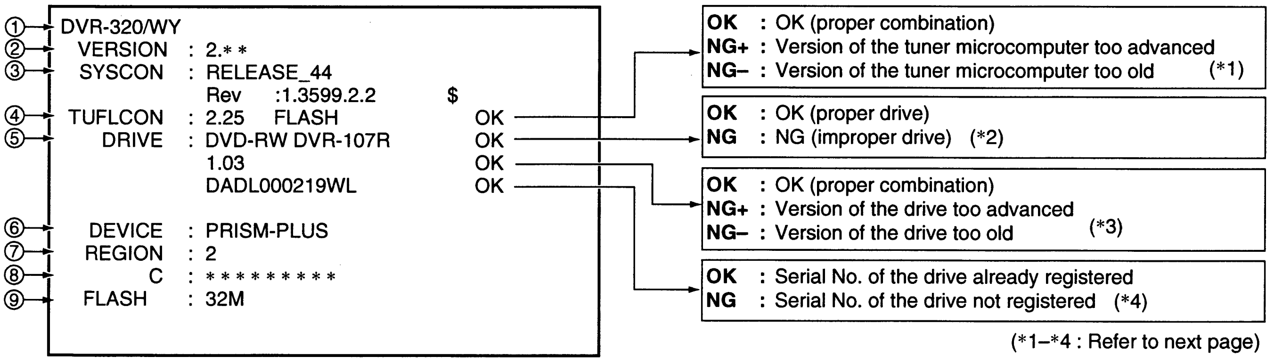
■ The Service-mode screens to be used for service are as follows:

1 = First screen: Version information, etc.
2 = Second screen: ATA/ATAPI debug screen (Writer data)
4 = Fourth screen: Error log for the VR recording system
5 = Fifth screen: Error log for the VR playback system

Note: After entering one of the Service-mode screens, if you wish to shift to another Service-mode screen, exit Service mode first, then reenter Service mode and select your desired Service-mode screen.

■ Description of Each Service-mode screen

1. First screen (version information, etc.)



```
DVR-320/WY
 VERSION  : 2.**
 SYSCON   : RELEASE_44
            Rev   :1.3599.2.2        $
 TUFLCON  : 2.25   FLASH             OK
   DRIVE  : DVD-RW DVR-107R          OK
            1.03                     OK
            DADL000219WL             OK

  DEVICE  : PRISM-PLUS
  REGION  : 2
       C  : *********
   FLASH  : 32M
```

OK : OK (proper combination)
NG+ : Version of the tuner microcomputer too advanced
NG– : Version of the tuner microcomputer too old (*1)

OK : OK (proper drive)
NG : NG (improper drive) (*2)

OK : OK (proper combination)
NG+ : Version of the drive too advanced
NG– : Version of the drive too old (*3)

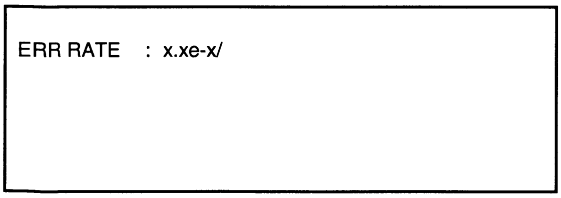
OK : Serial No. of the drive already registered
NG : Serial No. of the drive not registered (*4)

(*1–*4 : Refer to next page)

① Model name/destination
② Version of the recorder software
③ Revision No. of the system-control computer software (Edition administration No. [from top to bottom, common software, firmware, application software])
④ Version No. of the tuner microcomputer, Mask or Flash
Result of the combination ckeck with system u-com
⑤ Information on the built-in drive
(Model name, version No., model type, serial No.)
⑥ Version No. of PRISM
⑦ Region No.
⑧ CPRM data (CPRM key No.)
⑨ FLASH ROM information

While the first screen shown above is displayed, press the DIG/ANA key to enter the subscreen shown below.
Note: Each time the DIG/ANA key is pressed, the display changes between the first screen and its subscreen.

• Subscreen: Result of error-rate measurement



```
ERR RATE   : x.xe-x/
```

Note: Be sure to start playback after displaying this subscreen to calculate the error rate.

During playback in VR mode, the average error rate of the past 10 VOBUs is displayed, and during playback in DVD-Video or Video mode, the average error rate of the past 256 sectors is displayed. During playback in VR mode, the rotation rate of the drive (/: normal speed, no display = double speed) is also displayed.

- **When "NG" is displayed at First screen (version information, etc)**

(*1) NG+ : Version of the tuner microcomputer too advanced
NG- : Version of the tuner microcomputer too old

1. When TUFL μ-com is MASK type
   NG+ : Download the firmware.
   NG- : Replace the TUFL μ-com or JCKB ASSY.

2. When TuFL μ-com is FLASH type
   NG+ : Download the firmware.
   NG- : Download the firmware.

(*2) NG : NG (improper drive)

Replace the correct Drive Assy.

(*3) NG+ : Version of the drive too advanced
NG- : Version of the drive too old

NG+ : Download the firmware.
NG- : Download the firmware.

(*4) NG : Serial No. of the drive not registered

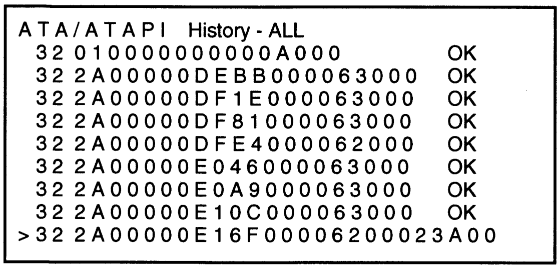
Check the part No. and replace the correct Drive Assy.

2. Second screen (ATA/ATAPI debug screen)

Subscreen 1 of the second screen is displayed when the ESC, DISP, then "2" keys are pressed, in that order.

Note: Each time the DIG/ANA key is pressed, the display changes cyclically among subscreens 1 to 4.

• Subscreen 1: Command log (ALL) of ATA/ATAPI DEBUG OSD



```
ATA/ATAPI  History - ALL
 32 010000000000A000          OK
 32 2A00000DEBB000063000      OK
 32 2A00000DF1E000063000      OK
 32 2A00000DF81000063000      OK
 32 2A00000DFE4000062000      OK
 32 2A00000E046000063000      OK
 32 2A00000E0A9000063000      OK
 32 2A00000E10C000063000      OK
>32 2A00000E16F00006200023A00
```

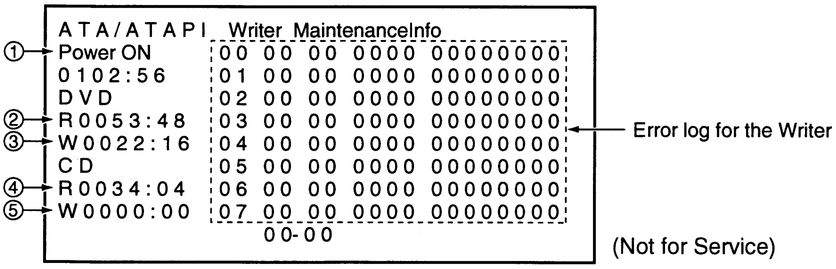
(Not for Service)

• Subscreen 2: Command log (ERROR) of ATA/ATAPI DEBUG OSD

(Not for Service)

• Subscreen 3: Writer mentenance information of ATA/ATAPI DEBUG OSD

The cumulative power-on time and error log that are administered by the writer are displayed. Such information is obtained when the power is turned on. Thereafter, each time the SEARCH key on the remote control unit for service is pressed while subscreen 3 is displayed, the updating command is sent, and the data on the subscreen are updated. Care must be taken when updating this subscreen, because an undesired command is inserted if it is executed while recording, etc.



```
ATA/ATAPI  Writer MaintenanceInfo
Power ON    00 00 00 0000 00000000
0102:56     01 00 00 0000 00000000
DVD         02 00 00 0000 00000000
R0053:48    03 00 00 0000 00000000
W0022:16    04 00 00 0000 00000000
CD          05 00 00 0000 00000000
R0034:04    06 00 00 0000 00000000
W0000:00    07 00 00 0000 00000000
                 00-00
```

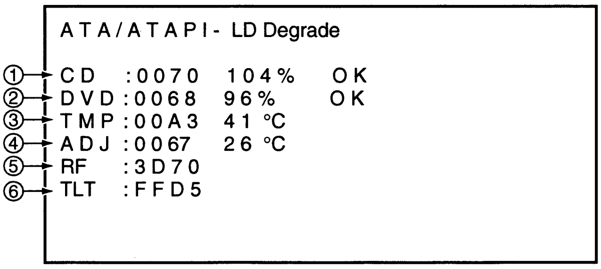
(Not for Service)

① Power-on time/cumulative power-on time
② Duration of emission of the laser diode (LD) for DVD-R/DVD while reading
③ Duration of emission of the LD for DVD-W/DVD while writing
④ Duration of emission of the LD for CD-R/CD while reading
⑤ Duration of emission of the LD for CD-W/CD while writing

(Reference)
MTTF time of each LD (as the guideline of life span of each LD)
R7R Drive Assy (Read + Write total time)
DVD : 4700h
CD : 11000h

• Subscreen 4: ATA/ATAPI DEBUG OSD_LD degradation judgment

The degrees of degradation of the LD (laser diode) for the writer (LDs for CD and DVD separately), temperature, and RF level are displayed. To update the data on the subscreen, press the SEARCH key on the remote control unit for service while subscreen 4 is displayed. See Table 1 below for a description of each item and the conditions for updating data.



```
ATA/ATAPI- LD Degrade

① CD  :0070  104%  OK
② DVD :0068  96%   OK
③ TMP :00A3  41 °C
④ ADJ :0067  26 °C
⑤ RF  :3D70
⑥ TLT :FFD5
```

Table 1: Description of each item and conditions for updating data

No.	Item	Description	Conditions for updating by pressing the SEARCH key	Remarks
①	CD	Degradation judgment of LD for CD. Regarded as NG when the value is 120% or higher (same standard as for the PC drive)	No disc inserted in the disc tray	*1
②	DVD	Degradation judgment of LD for DVD. Regarded as NG when the value is 120% or higher (same standard as for the PC drive)	No disc inserted in the disc tray	*1
③	TMP	Current temperature inside the Writer	No disc inserted in the disc tray	*1
④	ADJ	Temperature (approx. 25°C) inside the Writer during adjustment	No disc inserted in the disc tray	*1
⑤	RF	RF level (16-bit data, proportional calculation performed using the actual RF level value with 2.5 V = 0xFFFF as the maximum value, displayed in 4-digit hexadecimal)	During playback of disc medium	*2
⑥	TLT	Writer adjustment data for straight (non-HDD) model (FFFF is diplayed when the writer is not adjusted.)	No condition	

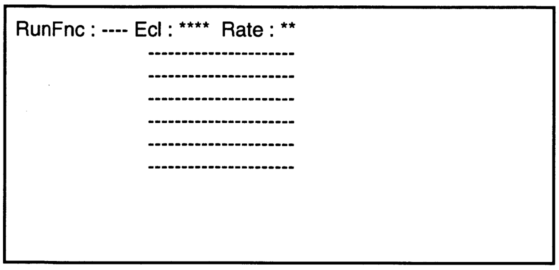
*1 : For correct judgment, after leaving the unit at a normal temperature (25°C typ.) for some time, judgment must be performed immediately after the unit is turned on with no disc loaded.

*2 : Use this item only for confirmation before and after lens cleaning, as the lens becomes dirty with dust.

3. Fouth screen (VR-recording-related error log)

Subscreen 1 of the fourth screen is displayed when the ESC, DISP, then "4" keys are pressed, in that order.
Note: Each time the DIG/ANA key is pressed, the display changes cyclically among subscreens 1 to 11.

• Subscreen 1:



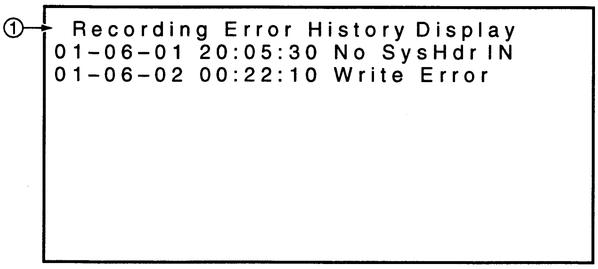
```
RunFnc : ---- Ecl : ****  Rate : **
              ----------------------
              ----------------------
              ----------------------
              ----------------------
              ----------------------
              ----------------------
```

(Not for Service)

• Subscreens 2 and 3:

These subscreens are not for service use.

• Subscreen 4: Error log for VR recording



```
①  Recording Error History Display
01-06-01 20:05:30 No SysHdr IN
01-06-02 00:22:10 Write Error
```

Note : The information on this screen is not stored in the memory and will disappear when the power is turned off.

① Recording-related error log for the last 18 errors, divided into 2 screens
(generation time [year-month-day, hour:minute:second], error data in simplified description)

Notes:
- For details on error messages, see Table 2 "Description of VR-recording-related errors".
- The two error-log screens can be switched by pressing the SPEED+ or SPEED- key.

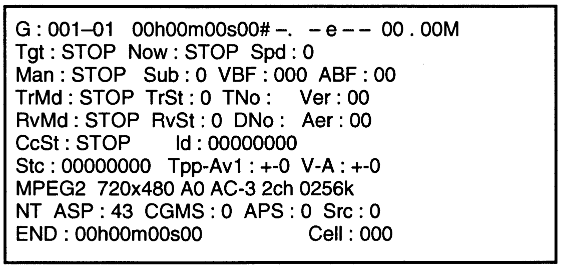
• Subscreens 5 to 11:

These subscreens are not for service use.

4. Fifth screen (Error log for VR playback)

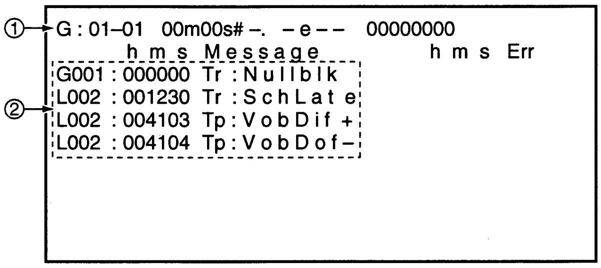
Subscreen 1 of the fifth screen is displayed when the ESC, DISP, then "5" keys are pressed, in that order.
Note: Each time the DIG/ANA key is pressed, the display changes cyclically among subscreens 1 to 4.

• Subscreen 1:



```
G : 001–01  00h00m00s00# –.  – e – –  00 . 00M
Tgt : STOP  Now : STOP  Spd : 0
Man : STOP  Sub : 0  VBF : 000  ABF : 00
TrMd : STOP  TrSt : 0  TNo :    Ver : 00
RvMd : STOP  RvSt : 0  DNo :  Aer : 00
CcSt : STOP       Id : 00000000
Stc : 00000000  Tpp-Av1 : +-0  V-A : +-0
MPEG2  720x480 A0 AC-3 2ch 0256k
NT  ASP : 43  CGMS : 0  APS : 0  Src : 0
END : 00h00m00s00              Cell : 000
```

• Subscreen 2: Error log for VR playback



```
①→G : 01–01   00m00s# –.  – e – –   00000000
          h m s  Message                 h m s  Err
   G001 : 000000  Tr : Nullblk
   L002 : 001230  Tr : SchLate
②→L002 : 004103  Tp : VobDif +
   L002 : 004104  Tp : VobDof–
```

Note : The information on this screen is not stored in the memory and will disappear when the power is turned off.

① Data on location of the display
Original(G)/play list (L), title No., chapter No. (X:XX-XX), time of the display (min, sec, frame [XXmXXsXX]), busy mark of the virtual mechanical-control computer (#), error rate of the transfer data (X.XeXX), playback logical address (ID [XXXXXXXX])

② Error message log
Original(G)/play list (L), title No., time of generation (min, sec [XXX:XXXX]), playback-related error log for the last 13 errors (XX:XXXXXXX)

Notes:
- For details on error messages, see Table 1 "Description of VR-playback-related errors".
- If a VR-playback-related error is generated, a problem in data reading from the disc may be suspected. (The possibility of a problem on the drive side is high.)

• Subscreens 3 and 4:

These subscreens are not for service use.

Table 1: Description of VR-playback-related errors

Error Message	Description
Tr : NullBlk	Transfer task: NULL at the top block (Detecting NG stream made at the DVR-1000 series and starting protection process.)
Tr : ReadErr	Transfer task: ATA read error
Tr : SchLate	Transfer task: ATA search late
Tr : SemTOvr	Transfer task: Timeout for gaining semaphore (no synchronization with the display)
Tr : NaviErr	Transfer task: Inconsistency between NAVI (navigator) of management data and actual NAVI
Tr : OrderEr	Transfer task: Inconsistent order
Mn : Av1Hang	Main task: Detects hang-up of AV decoder and starts recovery
ERR_RCV!	TPP task: Detects hang-up of AV decoder and starts recovery
Tp : VobDif+	TPP task: The decoder STC advances by 1 VOBU hour.
Tp : VobDif-	TPP task: The STC of the management information advances
Tp : midNULL	TPP task: The management information pointer designated was NULL.
Tp : ScanNg	TPP task: Failure to set the TPP memory when scanning was canceled.
Tp : RStepEr	TPP task: Although the reverse step had failed, the operation was forcibly terminated because the top cell was located.
Tp : tppErr	TPP task: Inconsistency occurred.
Rv : 1stTOvr	Reverse playback task: Timeout for waiting for interruption to the top VOBU immediately after starting decoding
Rv : OpnTOvr	Reverse playback task: Timeout for waiting for B-picture of the open GOP immediately after starting decoding
Rv : OpITOvr	Reverse playback task: Timeout for waiting for I-picture of the open GOP immediately after starting decoding
Rv : LnkTOvr	Reverse playback task: Timeout for waiting for link
Rv : LnkFail	Reverse playback task: Starts compensation by detecting link failure
Rv : R2FTOvr	Reverse playback task: Starts retrial after detecting timeout from reverse pause to forward pause
Rv : TopVbEr	Reverse playback task: Forced termination because of a possible error of the top data during reverse normal playback
Rv : OrderEr	Reverse playback task: Inconsistent order
Av : B/CTOvr	AV1: Buffer-clear timeout
Av : StrmOvr	AV1: Timeout for waiting for stream ready
Av : TpmTOvr	AV1: Timeout for TP mode change
Av : SpmTOvr	AV1: Timeout for a step command
CC_OS_ERR	Closed caption task: OS error

Abbreviations:

STC = System Time Clock
VOBU = Video Object Unit
GOP = Group Of Picture
B-picture = Bidirectionally predictive-picture
I-picture = Intra-picture
P-picture = Predictive-picture
TP mode change = AV1 term (Trick Play mode change)

Table 2: Description of VR-recording-related errors

● Error related to MPEG Encoder

Error Message	Description
Stream NG	Inappropriate input stream data
Stm Start NG	Failure to start encoding (reasons not clear)
AVEnc Hang	Inappropriate MPEG encoder
No SysHdr IN	System packet is not input periodically
Strm Start NG	Timeout waiting for system packet input at the beginning
IN Encode *	Changes cannot be made in the process of encoding
EncModul Hang	Encoder routine is hung up.

● Error related to Drive system

Error Message	Description
BUF Overflow	Overflow of the Stream Buffer
Drive Hang	The Drive is hung up.
Write Err	The Drive failed to write and could not be recovered.
Read Err	Reading failed, ECC failed, etc.
Drv Hard Err	Abnormality in the drive hardware or firmware
Mech No Res	No response from the mechanical-control computer
Drv Timeout	Timeout waiting for drive operation
NWA Exhaust	NWA surpassed and impossible to use
MKB Invalid	MKB reading error
Drv Err	General error of the drive
Fail Repair	Repair failed
ReadOnly DISC *	Because some data are invalid, data cannot be written
May Be V mode	AlthoughTMP_VMGI is not written, it may be Video Mode disc.
Rzn Rsv NG	Reserve RZone failed
Rzn Cls NG	Close RZone failed
Rzn Rpr NG	Repair RZone failed
Bdr Opn NG	Open Border failed
Bdr Cls NG	Close Border failed
Format NG	Format failed
OPC NG	OPC failed
PCA Full	PCA has been used up.
RMA Full	RMA has been used up.
VTSI_B Wr Err	Video Mode VTSI BUP Write Error
VTSI Wr Err	Video Mode VTSI Write Error
TMP-VMG WrErr	Video Mode TMP VMGI Write Error
CLS Rzon Fail	Video Mode Close Rzone failure

● Other Errors

Error Message	Description
DRAM NG	Abnormality in access to the Work DRAM
SRAM NG	Abnormality in access to the backup work SRAM
CPRM IC NG	Inappropriate CPRM IC
Drive Destroy	The drive has crashed.
MKB REVOKED	Error in gaining data
WM Cracked	WM Cracked
VBR-SRAM NG	Abnormality in VBR SRAM
BK BATT Down	Backup RAM data has been erased.
BK FSYS Dirty	Backup RAM data has not been wrtten on the File Sys.
VOBU Info NG	Inappropriate VOBU information
Ourob Strm NG	Inappropriate stream data to the Ouroboros input
WaterMark Det	Watermark detected
No Video	No video input (not locked)
Disc Full	No further data can be written because the disc is full.
No More Info *	No more space in the internal work-management area
No Permission *	No permission to write to the disc
Limit Over *	Standard maximum limit exceeded
Rec Pause *	No operation permitted during recording pause
Invalid Param *	Invalid parameter
Protect Src *	Source to be recorded is copy-protected.
Now Busy *	In the process of the emergency processing
Invalid Disc *	The disc cannot be recognized.
Invalid UDF *	Invalid UDF content
Invalid VMG *	Invalid VMG content
Invalid TMVMG	Invalid TMP_VMGI content
Unmatch Stamp *	Impossible to modify because of nonmatching time stamp
Virgin DISC	Virgin Disc
SW Vpb mode *	Switching to video playback routine is required.
SW Vrec mode *	Switching to video recording routine is required.
NV Pck MK Err	Error in creating NaviPack
NV Pck DMA Er	Inappropriate NaviPack DMA
Cell Close NG	Cell Close NG
Relocation Do	VR-recording data was relocated
Something *	undetermined error
Status NG *	Abnormality in change of statuses
Irr Action *	Incorrect action
Abort *	Cancellation
BusReset Done	Bus Reset has been excecuted.
Repair Excec	Repairing has been executed.
Format Excec	Formatting has been executed.
BUG	Some bugs
PARAM NO ACCP	Recording parameter is not matched.

• Other Errors (continued)

Error Message	Description
DRAM CLR Err	Video Mode DRAM (Stream Buffer) Clear failure
V Categ ID NG	Inappropriate Category ID
V Cate Inf NG	Inappropriate Category information
V Ext TY NG	Type NG
V Ext MAX Ovr	Count Max exceeded
V ExtToo Big	The extension file is too large.
Over Heat	Abnormal temperatute

• No Error

Error Message	Description
Non Err *	Normal

Notes;

- Any error message marked with * is displayed "RecErr : ---------" on the Subscreen 1 of the fourth screen.
- In a case of an error in the drive system, scratches or dirt on a disc, or a problem of the drive itself (dirty pickup) may be suspected.

Abbreviations:

ECC = 4 byte Code for Error Correction
UDF = Universal Disc Format
PCA = Power Calibration Area
OPC = Optical Power Control
NWA = Next Writable Address
VMG = Video Manager
RMA = Recording Management Area
MKB = Media Key Block
TMP_VMGI = Temporary Video Manager Information
Border = from Lead-in to Lead-out

Table 3: List of Key Codes

How to enter each check mode

Test mode remote control unit : [A8**]
Remote control unit supplied with the DVR : [AB**]

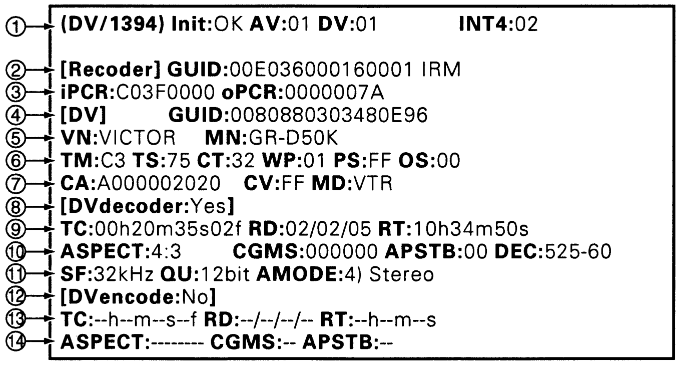
No.	Check Item	Key Input	Operation / purpose	Remarks
1	EE system (same as preview)	[ESC] → [A.MON]	Turns on/off EE mode cyclically	Make sure that CGMS = 11 becomes when CGMS = 10 is input. EE mode: Simulation mode for recording status
		[PLAY]	Starts the EE system in EE mode (main-unit setting rate)	
		[STOP]	Stops the EE system in EE mode	
2	Error-rate measurement	[ESC] → [SIDEB]	**V-mode recording:** After recording for 10 seconds, the unit starts playback while displaying the error rate. **DVD-Video:** The error rate is automatically measured, then the result will be displayed.	For details, see " 7.1.4 ERROR RATE MEASUREMENT ".
3	Settings for specific areas	[ESC] → [CHP/TIM]	Enters Adjustment mode for AVIO settings	Settings are made for the selected input (TUNER, LINE). For details, see " 7.1.5 SETTINGS FOR SPECIFIC AREAS ".
		[ESC]	Determines the settings, then exits Adjustment mode	

How the ESC code is processed

- When the ESC code is received, ESCAPE mode is entered, but in combination with the code(s) that follow(s), a specific meaning is added.
- If ESC codes are received continuously, ESCAPE mode is retained.

7.1.5 DV DEBUG MODE

Press the ESC, DISP, then "3" keys, in that order.



```
①→(DV/1394) Init:OK AV:01 DV:01         INT4:02

②→[Recoder] GUID:00E036000160001 IRM
③→iPCR:C03F0000 oPCR:0000007A
④→[DV]      GUID:0080880303480E96
⑤→VN:VICTOR   MN:GR-D50K
⑥→TM:C3 TS:75 CT:32 WP:01 PS:FF OS:00
⑦→CA:A000002020   CV:FF MD:VTR
⑧→[DVdecoder:Yes]
⑨→TC:00h20m35s02f RD:02/02/05 RT:10h34m50s
⑩→ASPECT:4:3      CGMS:000000 APSTB:00 DEC:525-60
⑪→SF:32kHz QU:12bit AMODE:4) Stereo
⑫→[DVencode:No]
⑬→TC:--h--m--s--f RD:--/--/--/-- RT:--h--m--s
⑭→ASPECT:-------- CGMS:-- APSTB:--
```

Boldface alphanumerics : Fixed indications
Nonboldface alphanumerics : Variable indications

No.	Item	Description	Remarks
①	Init	Whether the initialization of uPD72893B (1394LINK & DVcodec IC) has been completed (OK) or not (NG)	In a case of NG, communication with uPD72893B may have failed.
	AV	Number of AV devices on the local bus	
	DV	Number of DV devices on the local bus	If the number does not become 01 even if a DV device is connected, identification of that device fails.
	INT4	Number of executing INT4(PIO) interrupt processing routines until a POWER ON notification arrives from uPD72893B (normally, 02)	
②	GUID	GUID set in ConfigROM of the unit	In a case of ROOT (IRM), IRM is displayed at the rightmost of the GUID indication
③	iPCR	iPCR value of the unit	
	oPCR	oPCR value of the unit	
④	GUID	GUID set in ConfigROM of the connected DV device	Data are displayed only if one DV device is identified. If the connected DV device is ROOT (IRM), IRM is displayed at the rightmost of the GUID indication
⑤	VN	Vendor name set in ConfigROM of the connected DV device	Data are displayed only if one DV device is identified. (Depending on the device, the vendor name may not be set in ConfigROM.)
	MN	Model name set in ConfigROM of the connected DV device	Data are displayed only if one DV device is identified. (Depending on the device, the vendor name may not be set in ConfigROM.)
⑥	TM	Transport Mode data obtained from the DV device	Data are displayed only if one DV device is identified.
	TS	Transport State data obtained from the DV device	
	CT	Cassette Type data obtained from the DV device	
	WP	Copy-protection data obtained from the DV device	
	PS	Power-state data obtained from the DV device	
	OS	Output signal mode data obtained from the DV device	
⑦	CA	Connect AV data obtained from the DV device	Data are displayed only if one DV device is identified.
	CV	Camera/VTR data obtained from the DV device	
	MD	DV device mode	Camera or VTR is displayed only if one DV device is identified.
⑧	[DVdecode:XXX]	Whether Yes (in the process of requesting DV input) or No is indicated in XXX	Normally, Yes is indicated only when CH is set to DV

No.	Item	Description	Remarks
⑨	TC	Time-code data of the DVdecode Stream, or response data of the Time Code command	Stream time-code data are obtained when playback in the forward direction is performed. Otherwise, time-code data are obtained through an AV/C command.
	RD	Rec Date of DVdecode Stream	
	RT	Rec Time of DVdecode Stream	
⑩	ASPECT	Aspect Ratio of DVdecode Stream	
	CGMS	CGMS of DVdecode Stream (from left to right, CGMS data of bits 5-4: Audio ch2, bits 3-2: Audio ch1, and bits 1-0: Video)	Recording of DV input cannot be performed unless the value of CGMS is 00.
	APSTB	APS trigger bit of DVdecode stream	
	DEC	With/without DVdecode stream input	With input: Signal type (525-60, 625-50, 1125-60, 1250-50, or Invalid) is indicated, Without input: "No" is indicated.
⑪	SF	Sampling Frequency of DVdecode Stream	If SF is 44 kHz, it is considered that 44.1-kHz audio is input, and sound is muted on the unit.
	QU	QUANTIZATION of DVdecode Stream	
	AMODE	AUDIO MODE of DVdecode Stream	
⑫	[DVencode:XXX]	Whether Yes (in the process of requesting DV output) or No is indicated in XXX	Normally, Yes is indicated only with HDD or DVD playback
⑬	TC	TIME CODE of DVencode stream	
	RD	REC DATE of DVencode stream	
	RT	REC TIME of DVencode stream	
⑭	ASPECT	Aspect Ratio of DVencode stream	
	CGMS	CGMS of DVencode stream (common to video, audio ch1 and audio ch2)	Normally, sources other than CGMS=00 are not output.
	APSTB	APS trigger bit of DVencode stream	

■ Simple Diagnosis

Symptoms	Location in the Debug Screen	Items to be Checked, and Conditions	Possible causes
No operation for either DV input or output	①	Check the init indication: OK: Initialization of DV-related LSIs (IC5101, IC5202) appropriately completed NG: Communication failure between DV-related LSIs (IC5101, IC5202) and HOST microcomputer (IC1001). Initialization of DV-related LSIs (IC5101, IC5202) has not been completed properly.	Defective IC, defective soldering, defective power supply, etc.
		Check the number of DV devices when one DV device is connected to the recorder: 01: The connected DV device is correctly identified. Other than 01: The connected DV device is not correctly identified.	Defective DV terminals, improper connection of the DV-terminal board, defective IC, defective cables, an IEEE 1394 device other than the DV device connected
No picture nor sound for DV input	⑦	Check of DV decoding when the recorder channel is set to DV: Yes: The recorder is in the process of a DV input operation No: The recorder is not executing a DV input operation	Defective IC, defective soldering, defective power supply, etc.
	⑨	Check DEC: 525-60: An NTSC DV signal is input from the DV device. 625-50: A PAL DV signal is input from the DV device. No: No DV signal is input from the DV device.	Defective DV terminals, improper connection of the DV-terminal board, defective IC, defective source device **Note:** As to a model having the Input Line System setting, if the setting and the actual input signal system do not match, no picture appears.
DV input recording impossible	⑨	Check CGMS: 00: A copy-permitted source is being input. Other than 00: A copy-protected source is being input.	Recording cannot be performed for a copy-protected source.
No sound for DV input	⑩	Check SF: 32 khz: An audio signal with 32-kHz sampling frequency is being input. 48 khz: An audio signal with 48-kHz sampling frequency is being input. 44 khz: An audio signal with 44.1-kHz sampling frequency is being input.	An audio signal with 44.1-kHz sampling frequency is muted.
No picture nor sound for DV output	⑪	Check DVencode during DVD/HDD playback: Yes: The recorder is in the process of a DV output operation No: The recorder is not executing a DV output operation (No is also displayed during playback of copy-prohibited sources or simultaneous-recording/playback.)	Defective IC, defective soldering, defective power supply, etc.

7.1.6 ERROR RATE MEASUREMENT

How to enter Error-Rate Measurement mode

Press the ESC key then the SIDE-B key of the remote control unit for service to enter Error-Rate Measurement mode. During playback of DVD-VIDEO, Error-Rate Measurement mode can also be entered by pressing the ESC key then the PLAY key.

How to exit Error-Rate Measurement mode

Press the ESC key. The error-rate display disappears, and Error-Rate Measurement mode is exited.

Note: The error rate cannot be measured in VR mode or during CD playback.

Functions

① Video-mode recording (recording medium)

In this mode, DVD recording is automatically performed for 10 seconds, the recorded DVD title is played back while the error rate is being measured, then as soon as playback of the recorded DVD title is finished, playback stops.∗1 After error-rate measurement is finished, the average error rate will be displayed on the FL display and OSD. Only in a case in which the calculation of the average error rate fails, the tray will open.

② DVD-VIDEO (playback medium)

Only during playback, when the ESC key then the SIDE-B key (or the ESC key then the PLAY key) are pressed, the error rate is calculated and displayed on the FL display and OSD.(∗2) Only in a case in which the calculation of the average error rate fails, the tray will open.

■ Changes of display

Table 1: Video mode (recording medium)

Operation	Display	
	FL Display	OSD (On Screen Display)
"ERROR RATE" is displayed on the FL display for an instant.	ERROR RATE	
DVD recording starts.	ERROR RATE	
DVD recording is performed for 10 seconds.	xxxxx	
The recorded DVD title is played back while the error rate is being measured, then as soon as playback is finished it stops.	ER x.xE-x	ERR RATE : x.xE-x -
After error-rate measurement is finished (∗1), the average error rate, the measurement-finish mark (∗), and the OK/NG-judgment result (∗3) will be displayed on the FL display and OSD. (If the tray opens as a result of NG judgment, the display on the FL display and OSD will be retained.)	ER x.xE-x	ERR RATE : x.xE-x ∗ OK

Table 2: DVD-Video (playback medium)

Operation	Display	
	FL Display	OSD (On Screen Display)
Only during playback, when the corresponding keys are pressed, the error rate is calculated and displayed on the FL display and OSD. (∗2)	ER x.xE-x	ERR RATE : x.xE-x -
After error-rate measurement is finished (∗1), the average error rate, the measurement-finish mark (∗), and the OK/NG-judgment result (∗3) will be displayed on the FL display and OSD. (If the tray opens as a result of NG judgment, the display on the FL display and OSD will be retained.)	ER x.xE-x	ERR RATE : x.xE-x - OK

*1 : Whether error-rate measurement is finished or not is judged, as shown in Table 3 below.

Table 3: On judgment whether error-rate measurement is finished or not

Recording Mode	Judgment whether error-rate measurement is finished or not	Recording/playback duration required for error-rate measurement
Video mode	After playback of a certain amount (*) of data Measurement of the 16 ECC blocks is performed 16 times, then the grand sum is used for calculation of the error rate. The capacity is as follows: 16 ECC blocks × 16 sectors × 2048 bytes × 16 times = 8388608 bytes = 67108864 bits	The time required for completion of error-rate measurement varies, depending on the input video signal to be recorded. (The more the motion in the input video signal to be recorded is animated, the shorter the playback time required for completion of error-rate measurement becomes.)

*2 : During DVD-VIDEO error-rate measurement, even after error-rate measurement is finished, playback continues, and the display of the error rate results is retained. In this playback mode, if Error-Rate Measurement mode is exited by pressing the ESC key, then it is reentered by pressing the ESC and SIDE-B keys (or ESC and PLAY keys), the error rate will not be updated, and the previous value is displayed. To reset the previous error rate, stop disc playback.

*3 : OK/NG judgment
In DVD/VIDEO and Video Mode recording, OK/NG judgment is displayed under the following conditions:

Table 4: List of OK/NG threshold values

Disc Type	Recording Mode	Finalized or not finalized	Reference Value	Display
DVD-VIDEO			8.0×10^{-4}	OK / NG
DVD-R	Video mode	Finalized	1.0×10^{-3}	OK / NG
		Not finalized	1.0×10^{-3}	OK / NG
DVD-RW	Video mode	Finalized	1.0×10^{-3}	OK / NG
		Not finalized	1.0×10^{-3}	OK / NG

7.1.7 VIDEO ADJUSTMENT FOR SPECIFIC AREA

Purposes: Depending on the area, jitter may appear in a picture received by the tuner, as conditions of signals received by the tuner are different from area to area. To correct this kind of problem, the function of the System Codec AVIO control section for adjusting signals received by the tuner can be used.

How to enter setting modes: To enter General Setting mode, press the ESC key then the CHP/TIM key of the remote control unit for service. To enter Specific Channel Setting mode, press the DIG/ANA key in General Setting mode.

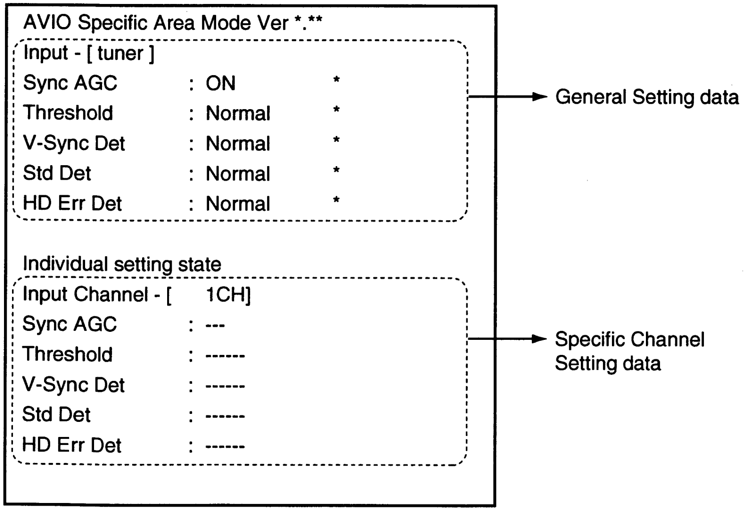
How to exit setting modes: Press the ESC key. The setting mode is exited, the OSD disappears.

1. Specific Channel Setting mode

This mode is entered when the DIG/ANA key is pressed in General Setting mode. In this mode, specific settings can be made for up to 12 channels. For channels that do not have specific settings, the settings of General Setting mode are applied.
Display in Specific Channel Setting mode (A picture from the tuner can be viewed using the semitransparent OSD display.)

[Display in Specific Channel Setting mode]

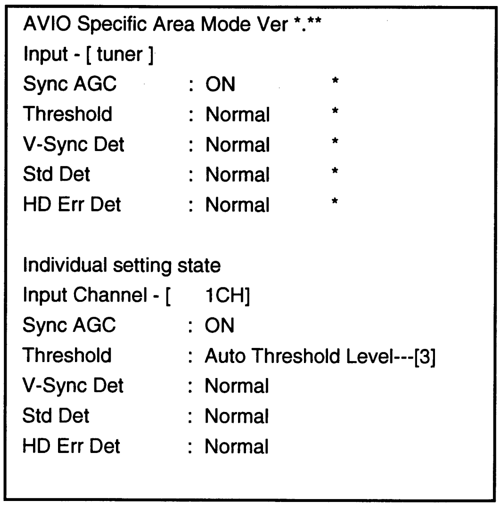
[When specific channel settings have NOT been made]



```
AVIO Specific Area Mode Ver *.**
Input - [ tuner ]
Sync AGC        : ON       *
Threshold       : Normal   *
V-Sync Det      : Normal   *
Std Det         : Normal   *
HD Err Det      : Normal   *

Individual setting state
Input Channel - [   1CH]
Sync AGC        : ---
Threshold       : ------
V-Sync Det      : ------
Std Det         : ------
HD Err Det      : ------
```

[When specific channel settings have been made]



```
AVIO Specific Area Mode Ver *.**
Input - [ tuner ]
Sync AGC        : ON       *
Threshold       : Normal   *
V-Sync Det      : Normal   *
Std Det         : Normal   *
HD Err Det      : Normal   *

Individual setting state
Input Channel - [   1CH]
Sync AGC        : ON
Threshold       : Auto Threshold Level---[3]
V-Sync Det      : Normal
Std Det         : Normal
HD Err Det      : Normal
```

* : setting is the default.

- If a channel that does not have specific settings is displayed, the setting figures are displayed as hyphens (--).
  If the setting figures are not displayed as hyphens, those settings have been specifically set even if they are identical to the default settings or those of General Setting mode.
- The channels to be displayed in "Input Channel" are as follows:
  - In a case of line input: L1-L3, DV
  - In a case of tuner input: Received channel (a channel to be set in specific channel settings)

Table 2: Key operations in Specific Channel Setting mode

(effective only during recording/playback stop)

Key	Operation	Setting (∗: Default)	Remarks
DIG/ANA	Switches cyclically between General Setting mode and Specific Channel Setting mode.	–	–
INPUT SELECT, CHANNEL +/– (∗R)	Switches inputs or channels.	–	–
[SIDE A], [SIDE B]	Sets Sync AGC.	ON (∗) / OFF	–
[Rev ×3], [×3 Fwd]	Sets Threshold level.	(∗) Normal Auto Threshold Level Manual Threshold Level Pedestal Level	–
[Rev CHAPTER SKIP] [CHAPTER SKIP Fwd]	Sets Threshold level.	According to the setting of Threshold, the values can be changed within the range mentioned below.	–
		• Normal: The value is fixed, with no display of the value.	–
		• Auto Threshold Level: 0-8 (Default: 0)	–
		• Manual Threshold Level: 0-8 (Default: 0)	–
		• Pedestal Level: 0-8 (Default: 0)	–
[Rev SCAN], [SCAN Fwd]	Sets V-Sync Det.	Normal (∗) / Short / Long	–
[Rev STILL STEP], [STILL STEP Fwd]	Sets Std Det.	Normal (∗) / Non STD	–
[SPEED +], [SPEED -]	HD Err Det	Normal (∗) / Fast / Stop	–
PLAY	All channels assigned to have specific settings are canceled, and the specific settings are reset to their default values.	–	Settings of General Setting mode are not affected.
CLEAR	Initializes the setting of Specific Channel Setting mode.	–	Pressing the key resets the settings of Specific Channel Setting mode for that channel to the initial values. Settings of General Setting mode are not affected.
PAUSE	The specific-setting data for the currently selected channel are reset to their default values. (But the assignment of a channel having specific settings is not canceled.)	–	Settings of General Setting mode are not affected (retained).
ESC	Exits AVIO setting for specific areas, clearing the OSD.	–	–

∗R: Refers to keys on the remote control unit supplied with this unit. The keys without "R" refer to the remote control unit for service.

- Screen display when Specific Channel settings are made on 12 (maximum) channels: In such a case. If a channel which does not have specific settings is selected, the individual setting state for that channel is not displayed, as shown in the figure below, and the settings cannot be modified. In such a case, if you wish to make Specific Channel Settings for the currently selected channel, you must clear the Specific Channel Settings for one or more channels beforehand.

**[With 12 channels having specific settings,
when the currently selected channel does not have specific settings]**

```
AVIO Specific Area Mode
Input - [ TUNER ]
Sync AGC      : ON        *
Threshold     : Normal    *
V-Sync Det    : Normal    *
Std Det       : Normal    *
HD Err Det    : Normal    *

Individual setting state
 Sorry !
You can store only 12 channels
for Specific Area mode.
```

2. General Setting mode

This mode can be entered only during recording/playback stop. In this mode, each item and its current settings are displayed on the OSD. The currently selected input mode (TUNER or LINE) is displayed. If L1, L2, L3 or DV is selected for input, general settings for the line input can be made, and if TUNER is selected, general settings for the tuner input can be made.

[General Setting mode] (*2)

```
AVIO Specific Area Mode
Input - [ tuner ]
Sync AGC      : ON        *
Threshold     : Normal    *
V-Sync Det    : Normal    *
Std Det       : Normal    *
HD Err Det    : Normal    *
```

* : setting is the default.

Table 1: Key operations in General Setting mode (effective only during recording/playback stop)

Key	Operation	Setting (∗: Default)	Remarks
INPUT SELECT, CHANNEL +/– (∗R)	Switches inputs or channels.	–	–
[SIDE A], [SIDE B]	Sets Sync AGC.	ON (∗) / OFF	–
[Rev ×3], [×3 Fwd]	Sets Threshold level.	(∗) Normal Auto Threshold Level Manual Threshold Level Pedestal Level	–
[Rev CHAPTER SKIP] [CHAPTER SKIP Fwd]	Sets Threshold level.	According to the setting of Threshold, the values can be changed within the range mentioned below.	–
		• Normal: The value is fixed, with no display of the value.	–
		• Auto Threshold Level: 0-8 (Default: 0)	–
		• Manual Threshold Level: 0-8 (Default: 0)	–
		• Pedestal Level: 0-8 (Default: 0)	–
[Rev SCAN], [SCAN Fwd]	Sets V-Sync Det.	Normal (∗) /Short/Long	–
[Rev STILL STEP], [STILL STEP Fwd]	Sets Std Det.	Normal (∗) /Non STD	–
[SPEED +], [SPEED -]	HD Err Det	Normal (∗) /Fast/Stop	
CLEAR	Initializes the setting of General Setting mode.	–	Pressing the key resets all settings of General Setting mode to the initial values. Settings of Specific Channel Setting mode are not affected (they are retained).
ESC	Exits AVIO setting for specific areas, clearing the OSD.	–	–

∗R: Refers to keys on the remote control unit supplied with this unit. The keys without "R" refer to the remote control unit for service.

∗1 : In General Setting mode, if the channel displayed has specific settings, the following will be displayed.

[Display in General Setting mode when the channel currently displayed has specific settings]

```
AVIO Specific Area Mode  Ver*.**
Input - [tuner ]
Sync AGC        : ON        *
Threshold       : Normal    *
V-Sync Det      : Normal    *
Std Det         : Normal    *
HD Err Det      : Normal    *

     This channel is set up
     individually.
```

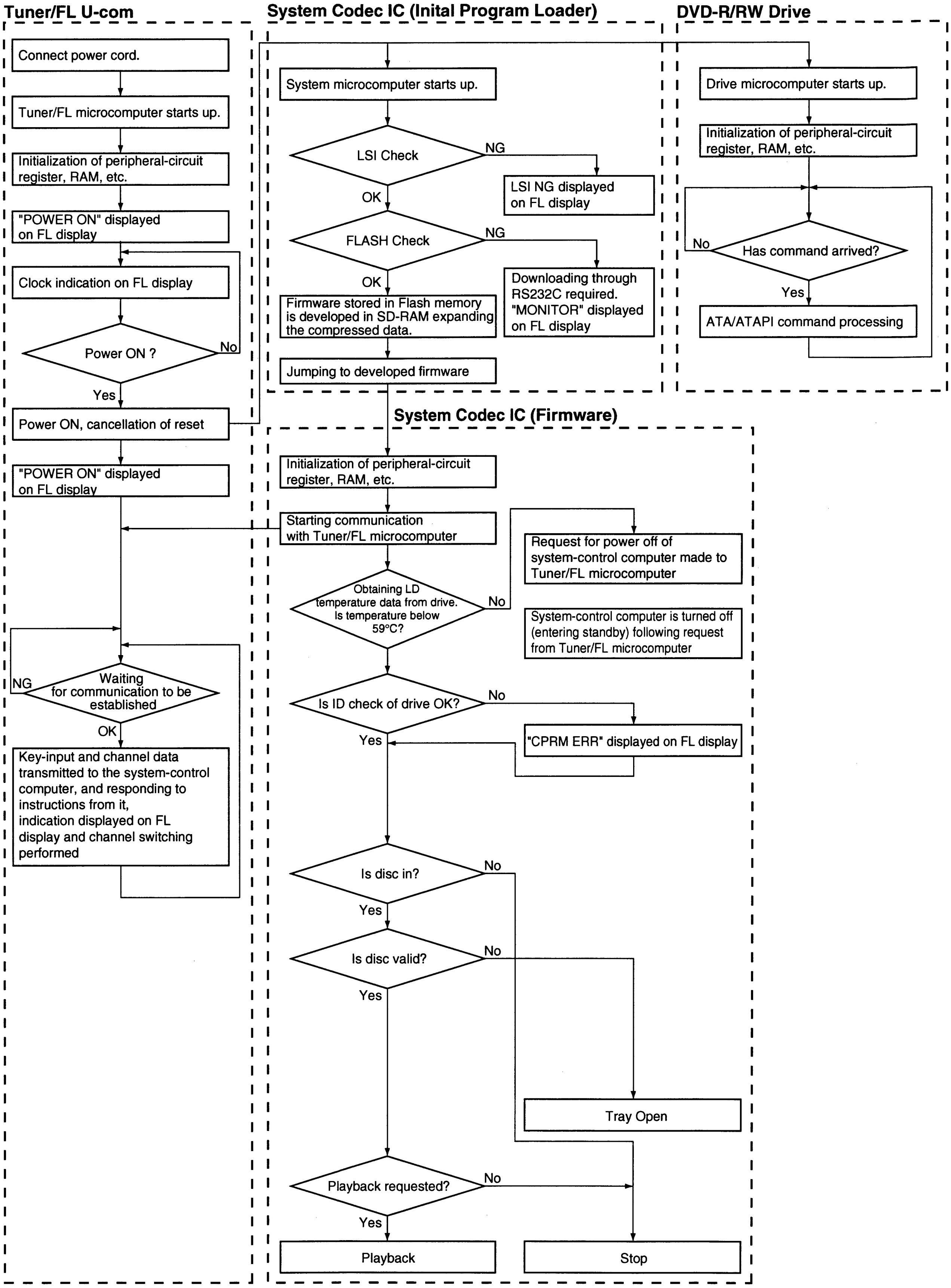
7.1.8 AGING MODE

Notes:

Commands from the remote control unit are accepted during Aging mode.
If Aging mode is quit using the ESC key, indications on the FL display will return to normal display.
Cancel timer settings before entering Aging mode.
Set the recording rate beforehand. It cannot be changed during Aging mode.

	Aging for the DVD-RW	**Aging for the DVD-R**
To enter Aging mode	Press the DVD key to switch to DVD. Install a recordable DVD-RW disc. After disc detection, press the ESC key then the REP.B key on the remote control unit for servicing to enter Aging mode.	Press the DVD key to switch to DVD. Install a recordable DVD-R disc. After disc detection, press the ESC key then the REP.B key on the remote control unit for servicing to enter Aging mode.
To quit Aging mode	Press the ESC key on the remote control unit for servicing to quit Aging mode and return to Normal mode. This also results in the following: • If during recording: Recording is stopped. • If during playback: Playback is paused. • If during initialization: The unit stops after initialization is finished. • If the tray is being opened/closed: The unit stops after the tray is opened/closed.	Press the ESC key on the remote control unit for servicing to quit Aging mode and return to Normal mode. This also results in the following: • If during recording: Recording is stopped. • If during playback: Playback is paused.
Function	During Aging mode, the following operations are repeated in the order shown below. ① The tray opens. ② The tray closes. ③ Initialization ④ Recording for 60 minutes ⑤ Playback for 45 minutes ③ Initialization is performed according to the setting specified in "DVD-RW automatic initialization" (accessed by selecting "Unit Setting" then "Option"). During Aging, the number of loops is indicated on the FL display, as shown below. [AGING 0001] If an error is generated, the aging operation stops. **Note:** Indications on the FL display are retained, and this information is also retained as an OSD.	During Aging mode, the following operations are repeated in the order shown below. ① The tray opens. ② The tray closes. ③ Recording for 1 minute ④ Recording pause for 6 minutes ⑤ Recording stops. ⑥ Playback for 1 minute ⑦ Playback pause for 6 minutes ⑧ Playback stops. **Note:** A continuous test of the above operations is possible for approximately 23 hours. After ② the tray closes, disc detection is performed, and if 99 titles have already been registered, the unit stops there. The number of loops is retained and indicated on the FL display. An error indication is retained as an OSD. During Aging, the number of loops is indicated on the FL display, as shown below. [AGING 0001] If an error is generated, the aging operation stops. **Note:** Indications on the FL display are retained, and this information is also retained as an OSD. **Note:** Recording time depends on the recording rate set. For example, if the recording rate is MN32, only up to 60 titles can be registered. Check the setting for recording rate before performing aging.

7.1.9 SETUP SEQUENCE


Tuner/FL U-com
Connect power cord.
Tuner/FL microcomputer starts up.
Initialization of peripheral-circuit register, RAM, etc.
"POWER ON" displayed on FL display
Clock indication on FL display
Power ON ?
No
Yes
Power ON, cancellation of reset
"POWER ON" displayed on FL display
NG
Waiting for communication to be established
OK
Key-input and channel data transmitted to the system-control computer, and responding to instructions from it, indication displayed on FL display and channel switching performed
System Codec IC (Inital Program Loader)
System microcomputer starts up.
LSI Check
NG
LSI NG displayed on FL display
OK
FLASH Check
NG
Downloading through RS232C required. "MONITOR" displayed on FL display
OK
Firmware stored in Flash memory is developed in SD-RAM expanding the compressed data.
Jumping to developed firmware
DVD-R/RW Drive
Drive microcomputer starts up.
Initialization of peripheral-circuit register, RAM, etc.
No
Has command arrived?
Yes
ATA/ATAPI command processing
System Codec IC (Firmware)
Initialization of peripheral-circuit register, RAM, etc.
Starting communication with Tuner/FL microcomputer
Request for power off of system-control computer made to Tuner/FL microcomputer
Obtaining LD temperature data from drive. Is temperature below 59°C?
No
System-control computer is turned off (entering standby) following request from Tuner/FL microcomputer
Is ID check of drive OK?
No
"CPRM ERR" displayed on FL display
Yes
Is disc in?
No
Yes
Is disc valid?
No
Yes
Tray Open
Playback requested?
No
Yes
Playback
Stop

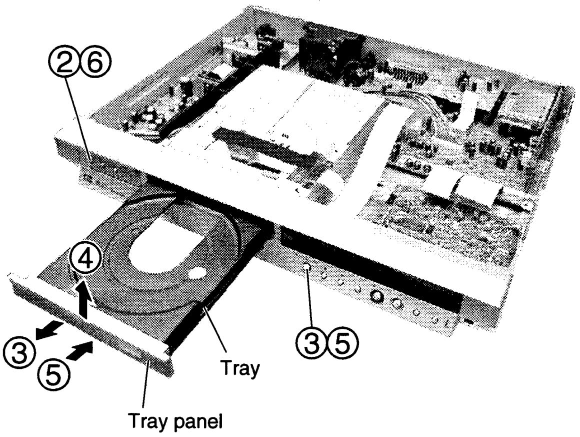
7.1.10 DISASSEMBLY

Note: Even if the unit shown in the photos and illustrations in this manual may differ from your product, the procedures described here are common.

Diagnosis of the MAIN Assy

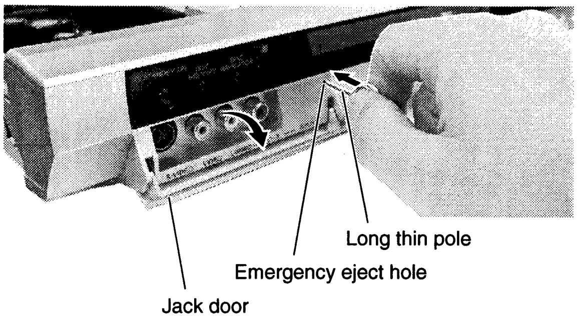
1 Bonnet Case S and Tray panel

① Remove the bonnet case S by removing the eight screws.
② Press the ⏻ STANDBY/ON button to turn on the power.
③ Press the ▲ OPEN/CLOSE button to open the tray.
④ Remove the tray panel.
⑤ Press the ▲ OPEN/CLOSE button to close the tray.
⑥ Press the ⏻ STANDBY/ON button to turn off the power.


②⑥
④
③
⑤
Tray
③⑤
Tray panel

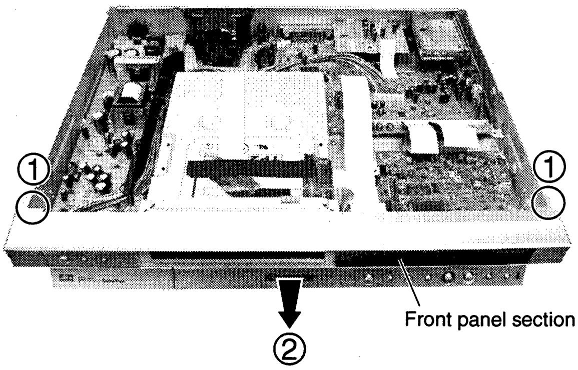
● How to open the tray when the power cannot be on

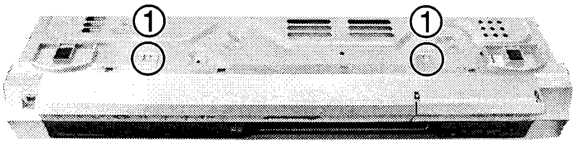
When the player cannot eject disc tray due to power failure or any other reasons, open the jack door, and use a long thin pole and push the emergency eject hole under the tray panel to eject.


Long thin pole
Emergency eject hole
Jack door

2 Front panel section

① Unhook the four hooks.
② Remove the front panel section.

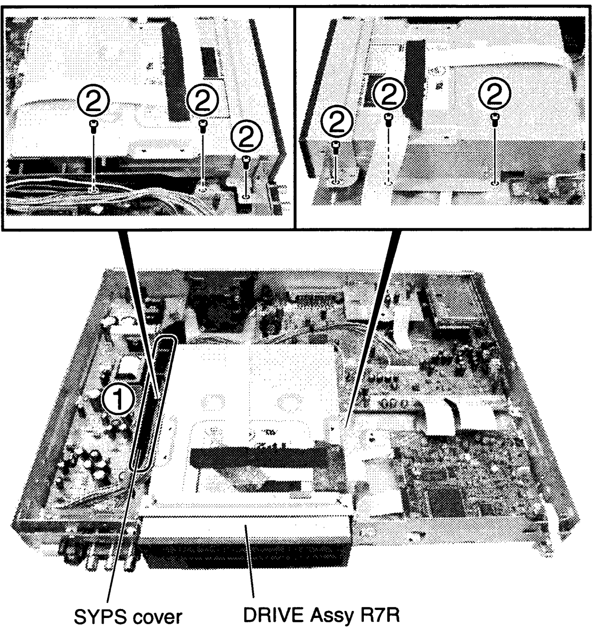

①
①
Front panel section
②



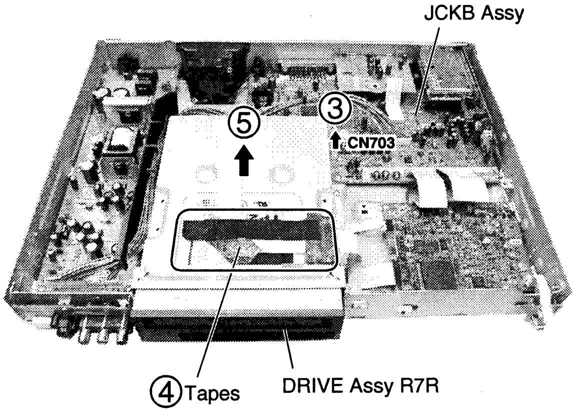
• Bottom view

3 DRIVE Assy R7R (DVD-R/RW WRITER)

① Remove the two jumper wires from the SYPS cover.
② Remove the six screws.

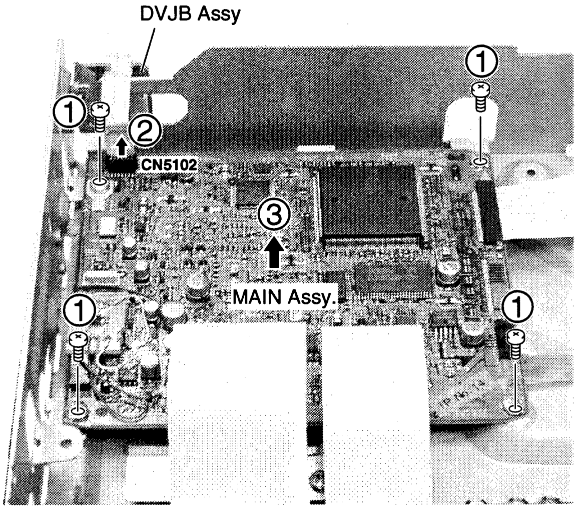

②
②
②
②
②
②
①
SYPS cover
DRIVE Assy R7R

③ Disconnect the connector.
④ Remove the some tapes.
⑤ Remove the DRIVE Assy R7R.


JCKB Assy
⑤
③
CN703
④Tapes
DRIVE Assy R7R

4 MAIN Assy

① Remove the four screws.
② Disconnect the flexible cable.
③ Stand the MAIN Assy.

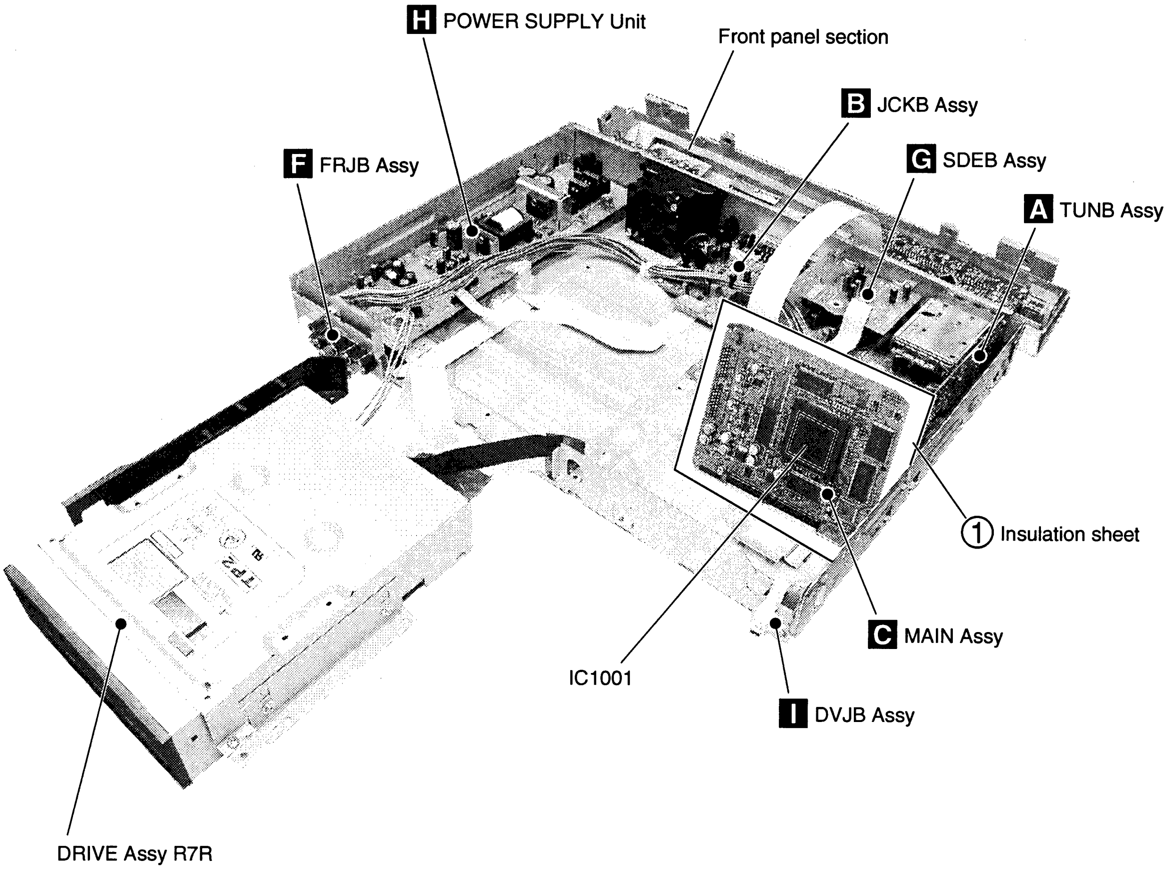

DVJB Assy
①
①
②
CN5102
③
MAIN Assy.
①
①

5 Diagnosis

① Insert the insulation sheet between the MAIN Assy and base chassis.

② Arrange the unit as shown in the photo below.

Caution :
Main IC (IC1001) on the MAIN Assy generate heat to arround 80 degrees.
Be careful when works.


H POWER SUPPLY Unit
Front panel section
B JCKB Assy
F FRJB Assy
G SDEB Assy
A TUNB Assy
① Insulation sheet
C MAIN Assy
IC1001
I DVJB Assy
DRIVE Assy R7R

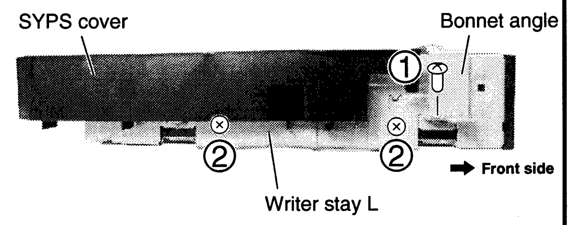
Diagnosis

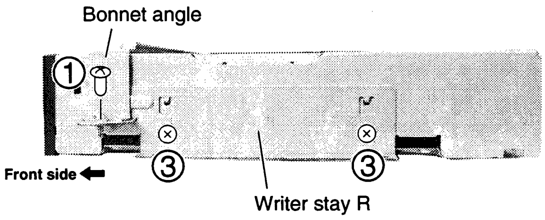
Cleaning the pickup lens

① Remove the bonnet angle by removing the two screws.

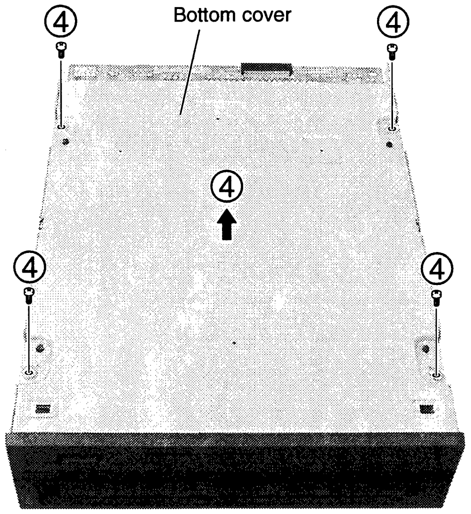
② Remove the writer stay L by removing the two screws with the SYPS cover.

③ Remove the writer stay R by removing the two screws.


SYPS cover
Bonnet angle
①
②
②
Front side
Writer stay L


Bonnet angle
①
Front side
③
③
Writer stay R

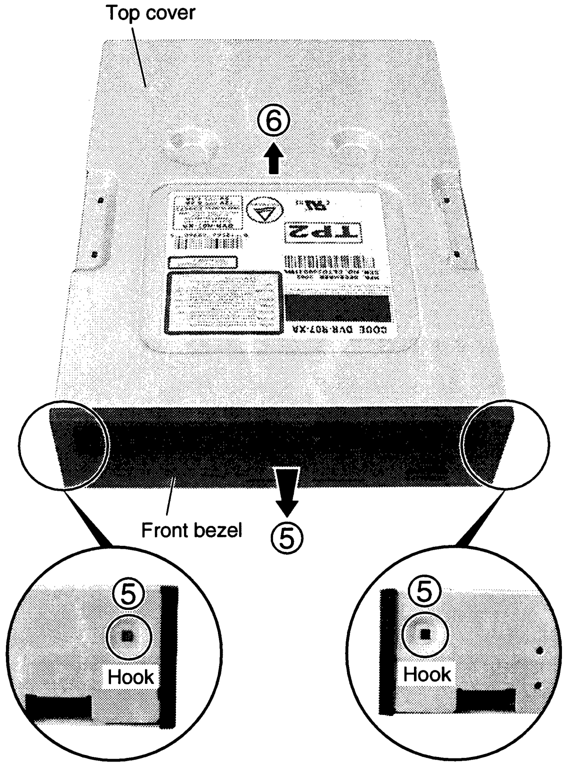
④ Remove the bottom cover by removing the four screws.


④
Bottom cover
④
④
④
④

● **Bottom view**

⑤ Remove the front bezel by unhooking the two hooks.

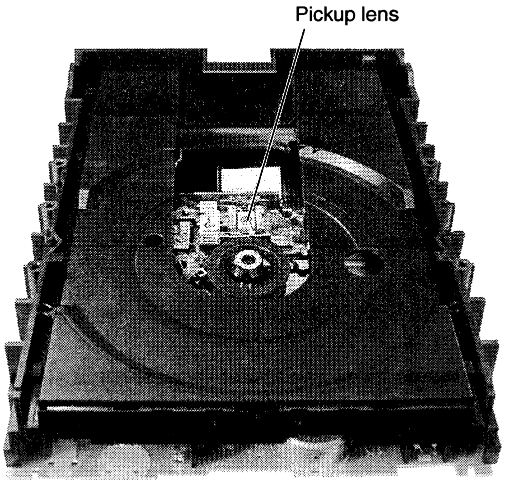
⑥ Remove the top cover.


Top cover
⑥
Front bezel
⑤
⑤
Hook
⑤
Hook

⑦ Clean the pickup lens.

Before shipping out the product, be sure to clean the following positions by using the prescribed cleaning tools :

Cleaning liquid : GEM1004
Cleaning paper : GED-008


Pickup lens

7.2 IC

- The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

List of IC

PEG035B, TDA9818TS, LA73026AV, RS5C372A, LC75342M, LA73033M, AK5381VT, PST3428U, PST3809U
M65673WG-A, UPD72852AGB-8EU, UPD72893AGD-LML

■ PEG035B (JCKB ASSY : IC202)

- TUFL Microcomputer

Pin Function

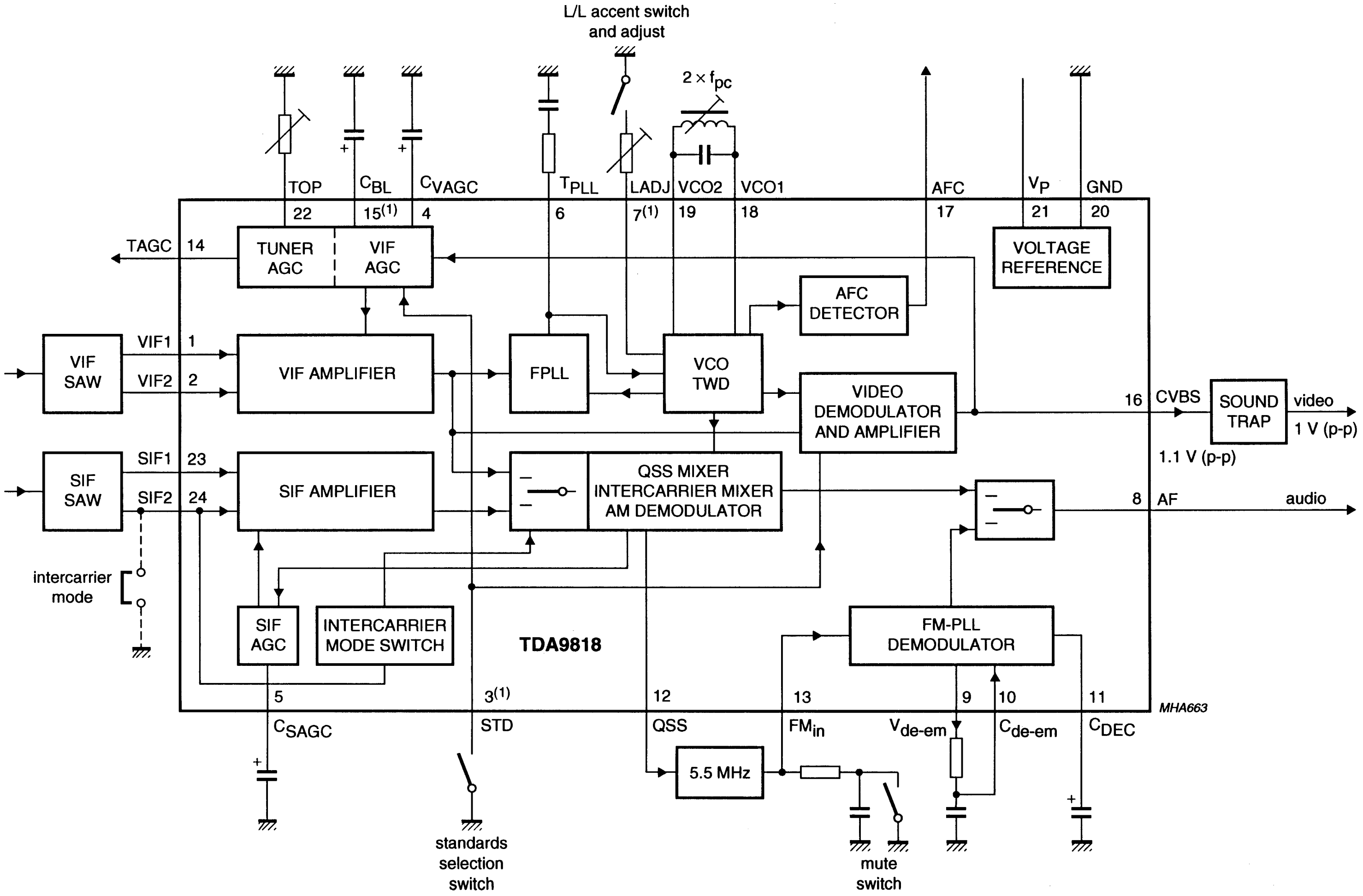
No.	Pin Name	Signal Name	I/O	Function	Active
1	P95/ANEX0/CLK4	FLCLK	O	FL Driver communication line CLK	–
2	P94/DA1/TB4in	SYNC	I	C-Sync of input video	↑
3	P93/DA0/TB3in	AVLINKIN	I	Input line of NexTViewLink	–
4	P92/TB2in/Sout3	IR	I	Pulse input of remote control	–
5	P91/TB1in/Sin3	J_CLOCK	I		
6	P90/TB0in/CLK3	SYNCAFT	I	C-Sync of input video	↑
7	BYTE	BYTE	I		
8	CNVss	PGM	I	Communication line	
9	P87/XCin	NC	(O)		–
10	P86/XCout	NC	(O)		–
11	-RESET	XRESETIN	I	u-Con Reset	
12	Xout	XOUT	I		
13	Vss	GND	–		
14	Xin	XIN	I		
15	Vcc	VCC	–		
16	P85/-NMI	NMI	I		↓
17	P84/-INT2	(JOGA)	(I)	Not used	
18	P83/-INT1	SLICEONFB	I	Feedback from SLICEON pin	↑ ?
19	P82/-INT0	XINTRA	I	Alarm/interval interruption	↓
20	P81/TA4in	LED_HDD	(O)	Not used for straight model	–
21	P80/TA4out	LED_DVD	(O)	Not used for straight model	–
22	P77/TA3in	PSAVE_MUTE	O	for noise suppression when controling SCART power	–
23	P76/TA3out	FANPWM	O	FAN power control	H
24	P75/TA2in	(JOGB)	(I)	Not used	
25	P74/TA2out	NC	(O)		–
26	P73/-CTS2/-RTS2/TA1in	NC	O		–
27	P72/CLK2/TA1out	AVLINKOUT	O	Output line of NextViewLink	H
28	P71/RxD2/SCL/TA0in/TB5in	SCL	I/O	I2C communication (clock)	–
29	P70/TxD2/SDA/TA0out	SDA	I/O	I2C communication (data)	–
30	Vss2	GND	–		
31	LP2	LP2	O		
32	LP3	LP3	O		
33	LP4	LP4	O		
34	Vdd2	VDD2	–		
35	M2	M2	I	Mode switch	
36	M1	M1	I		
37	P11/SLICEON	SLICEON	O	Slicer operating signal	H?
38	P67/TxD1	TXD	O	Communication line for firmware download/monitor	–
39	P66/RxD1	RXD	I	Communication line for firmware download/monitor	–
40	P65/CLK1	SCLK	(O)	Communication line for firmware download/monitor	–

No.	Pin Name	Signal Name	I/O	Function	Active
41	P64/-CTS1/-RTS1/CLKS1	BUSY	O	Communication line for firmware download/monitor	–
42	P63/TxD0	SSTTOM	O	SYS controller communication line (Tuner → Main)	–
43	P62/RxD0	SSMTOT	I	SYS controller communication line (Main → Tuner)	–
44	P61/CLK0	SCK	I	SYS controller communication line (clock)	↑
45	P60/-CTS0/-RTS0	HSTTOM	O	Tuner → SYS handshake	L
46	P57/-RDY/CLKout	DLCONT	O	Voltage supply SW of FLASH-ROM writing	L
47	P56/ALE	WRT	O	Write signal	H
48	P55/-HOLD	SDAEEP	I/O	SDA line for EEPROM	–
49	P54/-HLDA	SCLEEP	O	SCL line for EEPROM	–
50	P53/BCLK	VOLCE	O	Communication line CE	H
51	P52/-RD	VOLDATA	O	Communication line DATA	–
52	P51/-WRH/-BHE	VOLCLK	O	Communication line CLK	–
53	P50/-WRL/-WR	DLCE	I	Signal for serial I/O mode selection	–
54	P47/-CS3	NC	(O)		
55	P46/-CS2	NC	(O)		
56	P45/-CS1	NC	(O)		
57	P44/-CS0	BLANK	I	BLANK signal input	–
58	P43/A19	XTHROU	O	Through control of SCART1/2	L
59	P42/A18	NC	(O)		
60	P41/A17	EXTRGB	O		–
61	P40/A16	SWVION	O	Independent source SW for video I/O output circuit	H
62	P37/A15	SWSTBY	O	Standby mode of video input selector	H
63	P36/A14	NC	(O)		
64	P35/A13	BS15SRT	I		
65	P34/A12	SCTHRU	O	SCART loop through control during power OFF	L
66	P33/A11	NC	(O)		
67	P32/A10	NC	(O)		
68	P31/A9	SDET2	I	S terminal detection of Video input 2	L
69	Vcc	VCC	–		
70	P30/A8	NC	I		–
71	Vss	GND	–		
72	P27/A7	NC	(O)		
73	P26/A6	NC	(O)		
74	P25/A5	NC	(O)		
75	P24/A4	NC	(O)		
76	P23/A3	P_SAVEBS	O	RF through output switch	H
77	P22/A2	NC	O		–
78	P21/A1	NC	O		–
79	P20/A0	P_CONT	O	System Power ON	H
80	P17/D15/-INT5	NC	(O)		–

No.	Pin Name	Signal Name	I/O	Function	Active
81	P16/D14/-INT4	HSMTOT	I	SYS → Tuner handshake	↓
82	P15/D13/-INT3	DCTRI	I	Change detection of audio condition	↑
83	P14/D12	NC	O		–
84	P13/D11	SU/SAPID	I		
85	P12/D10	ST/STID	I		
86	P11/D9	XRESET	O	System Reset output	L
87	P10/D8	LDASH	O	ColorSystem distinction signal	H
88	P07/D7	STBYQ	O	EU multiplex decoder standby mode	L
89	P06/D6	LM/	O	ColorSystem distinction signal	H
90	P05/D5	I/BG	O	ColorSystem distinction signal	H
91	P04/D4	XP_SAVE	O	Power save control (SCART)	L
92	P03/D3	TUON	O	Tuner power	H
93	P02/D2	NC	(O)		
94	P01/D1	RSTCTL	O	Reset signal mask from the system controller	L
95	P00/D0	FLPON	O	FL Driver Power ON	H
96	P107/AN7/-KI3	MODEL1	A/D IN	Input for destination judgment	–
97	P106/AN6/-KI2	MODEL2	A/D IN	Input for destination judgment	–
98	P105/AN5/-KI1	AGC	A/D IN	Field intensity detection	–
99	P104/AN4/-KI0	FUNC	A/D IN	Function signal input	–
100	P103/AN3	KEY2	A/D IN	Main unit key input	–
101	P102/AN2	KEY1	A/D IN	Main unit key input	–
102	P101/AN1	C/N	A/D IN		–
103	Avss	GND	–		
104	P100/AN0	AFT	A/D IN	AFT voltage input	–
105	VREF	VREF	–		
106	AVcc	AVCC	–		
107	P97/-ADTRG/Sin4	FLSTB	O	Communication line strobe of FL driver	L
108	Vdd1	VDD1	–		
109	SYNCIN	SYNCTEXT	I	Video input for sync. sep.	
110	SVREF	SLICE	I	Slice level input	
111	Vss1	GND	–		
112	Vdd3	VDD3	–		
113	CVIN1	CVIN1	I	Video input for teletext	
114	Vss3	GND	–		
115	FSCIN	FSCIN	I	Fsc input	
116	P96/ANEX1/Sout4	FLDATA	O	Communication line data of FL driver	–

■ TDA9818TS (TUNB ASSY : IC302)

• VIF/SIF IC

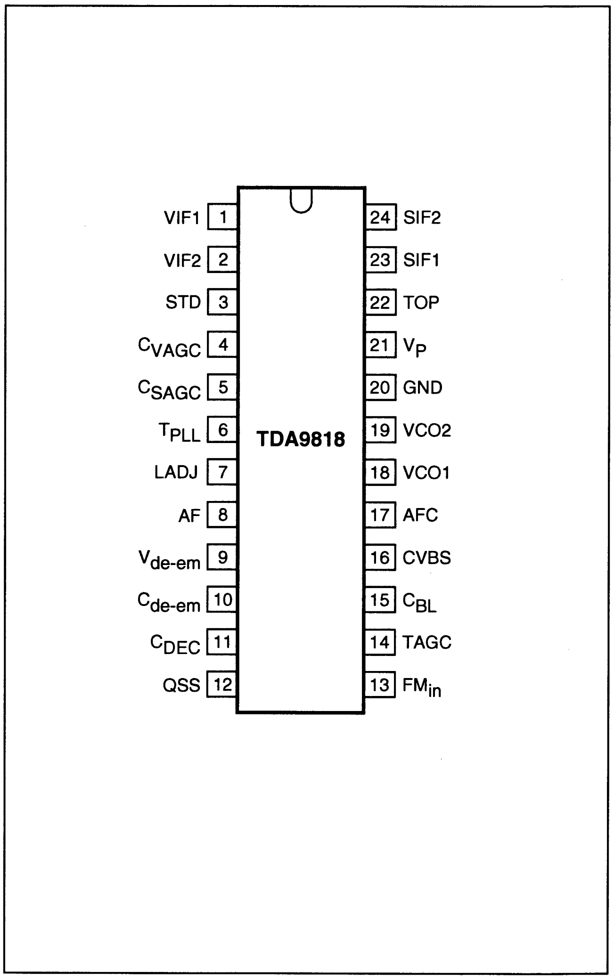


L/L accent switch and adjust
2 × f_{pc}
TOP
C_{BL}
C_{VAGC}
T_{PLL}
LADJ
VCO2
VCO1
AFC
V_P
GND
22
$15^{(1)}$
4
6
$7^{(1)}$
19
18
17
21
20
TAGC
14
TUNER AGC
VIF AGC
VOLTAGE REFERENCE
AFC DETECTOR
VIF1
1
VIF2
2
VIF SAW
VIF AMPLIFIER
FPLL
VCO TWD
VIDEO DEMODULATOR AND AMPLIFIER
16
CVBS
SOUND TRAP
video
1 V (p-p)
1.1 V (p-p)
SIF SAW
SIF1
23
SIF2
24
SIF AMPLIFIER
QSS MIXER INTERCARRIER MIXER AM DEMODULATOR
8
AF
audio
intercarrier mode
SIF AGC
INTERCARRIER MODE SWITCH
TDA9818
FM-PLL DEMODULATOR
5
$3^{(1)}$
12
13
9
10
11
MHA663
C_{SAGC}
STD
QSS
FM_{in}
$V_{de\text{-}em}$
$C_{de\text{-}em}$
C_{DEC}
5.5 MHz
standards selection switch
mute switch

● PIN FUNCTION

SYMBOL	PIN	DESCRIPTION
VIF1	1	VIF differential input signal voltage 1
VIF2	2	VIF differential input signal voltage 2
STD	3	standards selection switch; note 1
C_{VAGC}	4	VIF AGC capacitor
C_{SAGC}	5	SIF AGC capacitor
T_{PLL}	6	PLL filter
LADJ	7	L/L accent switch and adjust
AF	8	audio output
$V_{de\text{-}em}$	9	de-emphasis output
$C_{de\text{-}em}$	10	de-emphasis input
C_{DEC}	11	decoupling capacitor
QSS	12	single reference QSS/intercarrier output voltage
FM_{in}	13	sound intercarrier input voltage
TAGC	14	tuner AGC output
C_{BL}	15	black level detector
CVBS	16	composite video output voltage
AFC	17	AFC output
VCO1	18	VCO1 resonance circuit
VCO2	19	VCO2 resonance circuit
GND	20	ground
V_P	21	supply voltage
TOP	22	tuner AGC takeover point adjust
SIF1	23	SIF differential input signal voltage 1
SIF2	24	SIF differential input signal voltage 2

● PIN LAYOUT


TDA9818
VIF1 1
VIF2 2
STD 3
C_{VAGC} 4
C_{SAGC} 5
T_{PLL} 6
LADJ 7
AF 8
$V_{de\text{-}em}$ 9
$C_{de\text{-}em}$ 10
C_{DEC} 11
QSS 12
24 SIF2
23 SIF1
22 TOP
21 V_P
20 GND
19 VCO2
18 VCO1
17 AFC
16 CVBS
15 C_{BL}
14 TAGC
13 FM_{in}

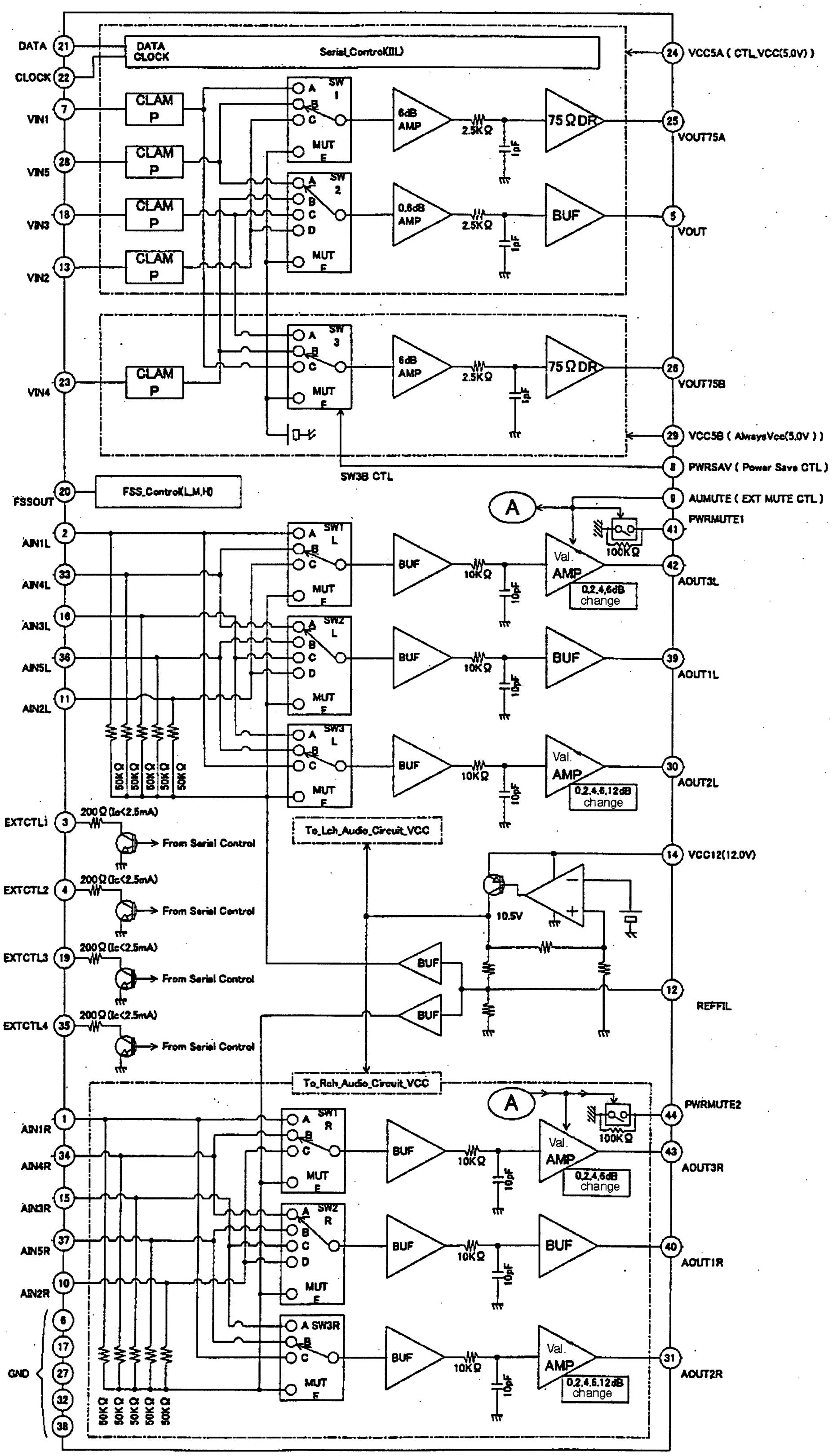
LA73026AV (JCKB ASSY : IC501)

- Dual SCART Interface IC

Pin Function

No.	Pin Name	DC Voltage	Function
1 2 10 11 15 16 33 34 36 37	AIN1R AIN1L AIN2R AIN2L AIN3R AIN3L AIN4L AIN4R AIN5L AIN5R	5.58V	Audio input terminal
3 4 19 35	EXTCTL1 EXTCTL2 EXTCTL3 EXTCTL4	2.5mA, ON →0.75V OFF →OPEN	General purpose output Opencollector
5	VOUT	1.10V	Video output terminal Push-pull output/Low-impedance
6 17 27 32 38	GND GND EXT-75ΩDR-GND DEC-75Ω-GND GND	0V	
7 13 18 23 28	VIN1 VIN2 VIN3 VIN4 VIN5	1.8V	Video input terminal Sync-tip clamp Input/Hi-impedance
8	PWRSAV	0.2V	Power save mode select pin OPEN : L
9	AUMUTE	0.05V	Control terminal for audio mute OPEN : L
12	REFFIL	4.94V	Terminal for Ref_DC ripple removing
14	VCC12		Vcc for audio
20	FSSOUT	H : Vcc-0.5V M : 6V L : 0V	FSS control terminal Output H, M, L 3 values with serial control
21	DATA		Confirmed to IIC BUS. Data input terminal
22	CLOCK		Confirmed to IIC BUS. Clock input terminal
24	VCC5A		Control Vcc for Video
25 26	VOUT75A VOUT75B	1.10V	Video driver output terminal Push-pull output/Low-impedance
29	VCC5B		Always VCC for Video
30 31 42 43	AOUT2L AOUT2R AOUT3L AOUT3R	4.91V	Audio output terminal Push-pull output/Low-impedance
39 40	AOUT1L AOUT1R	4.91V	Audio output terminal Push-pull output/Low-impedance
41 44	PWRMUTE1 PWRMUTE2	0V	Output terminal of audio muting

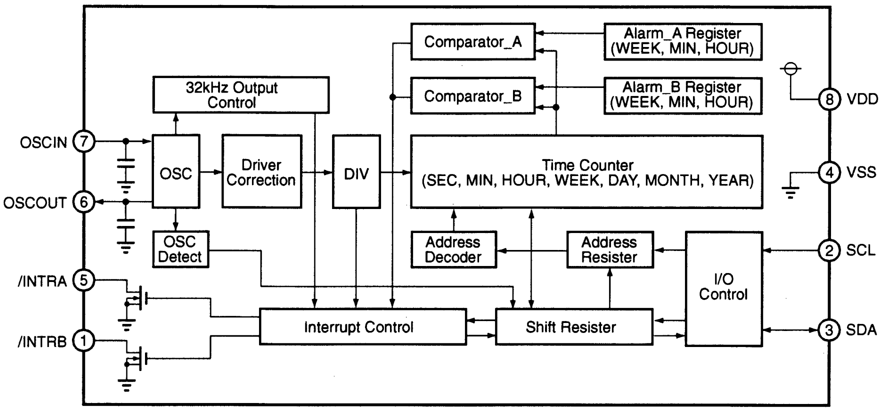
● Block Diagram


DATA 21
CLOCK 22
DATA
CLOCK
Serial_Control(IIL)
VIN1 7
VIN5 28
VIN3 18
VIN2 13
VIN4 23
CLAMP
SW 1
SW 2
SW 3
A
B
C
D
MUTE
6dB AMP
0.6dB AMP
2.5KΩ
1pF
75Ω DR
BUF
24 VCC5A (CTL_VCC(5.0V))
25 VOUT75A
5 VOUT
26 VOUT75B
29 VCC5B (AlwaysVcc(5.0V))
8 PWRSAV (Power Save CTL)
SW3B CTL
FSSOUT 20
FSS_Control(L,M,H)
9 AUMUTE (EXT MUTE CTL)
A
41 PWRMUTE1
100KΩ
AIN1L 2
AIN4L 33
AIN3L 16
AIN5L 36
AIN2L 11
SW1 L
SW2 L
SW3 L
10KΩ
10pF
Val. AMP
0,2,4,6dB change
0,2,4,6,12dB change
42 AOUT3L
39 AOUT1L
30 AOUT2L
50KΩ
EXTCTL1 3
EXTCTL2 4
EXTCTL3 19
EXTCTL4 35
200Ω (Ic<2.5mA)
From Serial Control
To_Lch_Audio_Circuit_VCC
14 VCC12(12.0V)
10.5V
12 REFFIL
To_Rch_Audio_Circuit_VCC
44 PWRMUTE2
AIN1R 1
AIN4R 34
AIN3R 15
AIN5R 37
AIN2R 10
SW1 R
SW2 R
SW3R
43 AOUT3R
40 AOUT1R
31 AOUT2R
GND 6 17 27 32 38

RS5C372A (JCKB ASSY : IC203)

- Real Time Clock IC

Block Diagram


Comparator_A
Alarm_A Register (WEEK, MIN, HOUR)
Comparator_B
Alarm_B Register (WEEK, MIN, HOUR)
32kHz Output Control
8 VDD
OSCIN 7
OSC
Driver Correction
DIV
Time Counter (SEC, MIN, HOUR, WEEK, DAY, MONTH, YEAR)
4 VSS
OSCOUT 6
OSC Detect
Address Decoder
Address Resister
2 SCL
I/O Control
/INTRA 5
Interrupt Control
Shift Resister
3 SDA
/INTRB 1

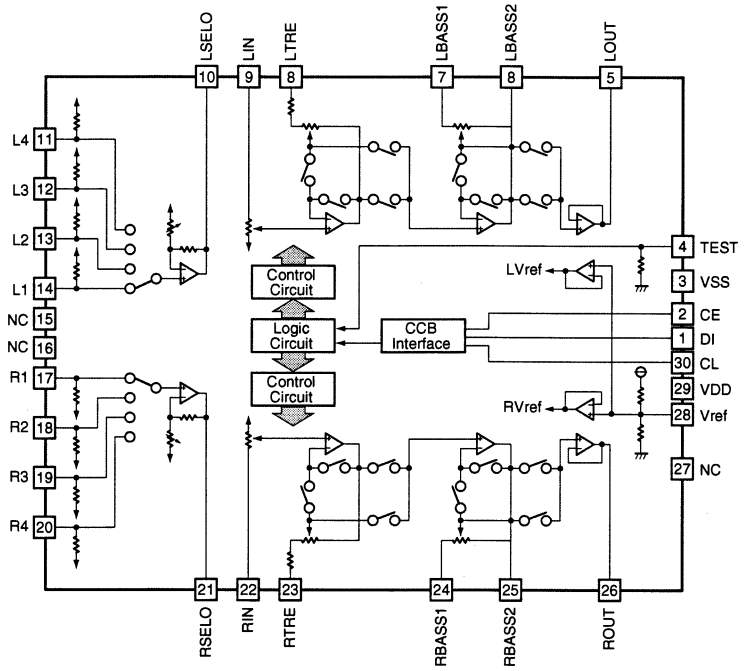
Pin Function

No.	Pin Name	I/O	Function	
1	/INTRB	O	Interruption output B The output of 32.768kHz (in 32768Hz crystal use), cycled interrupt for CPU, or output alarm interrupt (ALARM_B). This pin output 32.768kHz when activated power from 0V. Nch open drain output.	
2	SCL	I	Shift clock input Synchronize with this clock, and input and output data from a SDA terminal. Exceed VDD, and can input to 6V.	
3	SDA	I/O	Serial input and output Synchronize with SCL, and input and output writing data or readout data. Exceed VDD, and can input to 6V. Nch open drain output in the output.	
4	VSS	–	Ground pin	
5	/INTRA	O	Interruption output A Cycled interrupt for CPU, or output alarm interruption (ALARM_A, ALARM_B). This pin becomes an OFF state when activated power from 0V. N ch open drain output.	
6	OSCOUT	O	Oscillation circuit output	Connect a crystal resonator of 32.768kHz or 32.000kHz between OSCIN and OSCOUT, and constitute oscillation circuit. (component parts of oscillation circuit except crystal resonator have it built-in.)
7	OSCIN	I	Oscillation circuit input	
8	VDD	–	Positive supply input	

LC75342M (JCKB ASSY : IC601)

- Electric Volume IC

Block Diagram


LSELO
LIN
LTRE
LBASS1
LBASS2
LOUT
10
9
8
7
8
5
L4 11
L3 12
L2 13
L1 14
NC 15
NC 16
R1 17
R2 18
R3 19
R4 20
Control Circuit
Logic Circuit
Control Circuit
CCB Interface
LVref
RVref
4 TEST
3 VSS
2 CE
1 DI
30 CL
29 VDD
28 Vref
27 NC
21
22
23
24
25
26
RSELO
RIN
RTRE
RBASS1
RBASS2
ROUT

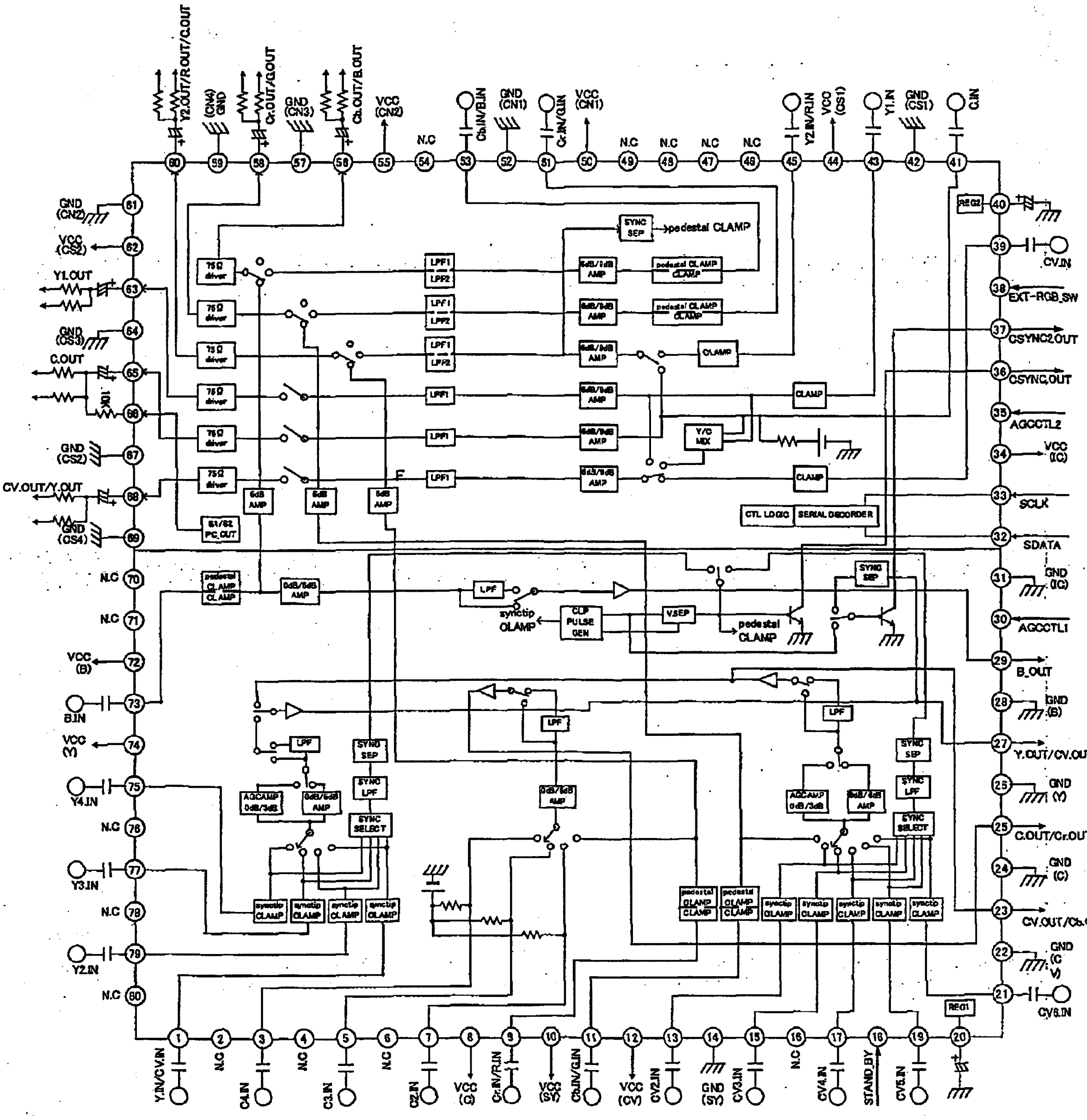
Pin Function

No.	Pin Name	Function	No.	Pin Name	Function
1	DI	Serial data input for control	16	NC	Not connected
2	CE	Chip enable pin Data are written in the internal latch by a timing of "H" → "L", and each analog switch works. Data transfer is enabled by "H" level.	17	R1	Input signal pin
3	VSS	Ground pin	18	R2	
4	TEST	Pin for electronic volume test Set to VSS electric potential.	19	R3	
5	LOUT	Volume and equalizer output pin	20	R4	
6	LBASS2	Capacitor and resistor connection pins for bus bandpass filter	21	RSELO	Input selector output pin
7	LBASS1		22	RIN	Volume and equalizer input pin
8	LTRE	Capacitor connection pin for treble bandpass filter	23	RTRE	Capacitor connection pin for treble bandpass filter
9	LIN	Volume and equalizer input pin	24	RBASS1	Capacitor and resistor connection pins for bus bandpass filter
10	LSELO	Input selector output pin	25	RBASS2	
11	L4	Input signal pins	26	ROUT	Volume and equalizer output pin
12	L3		27	NC	Not connected
13	L2		28	Vref	0.5XVDD voltage generation block
14	L1		29	VDD	Power supply pin
15	NC	Not connected	30	CL	Clock input pin for control

LA73033M (JCKB ASSY : IC701)

- Video selector and Video driver

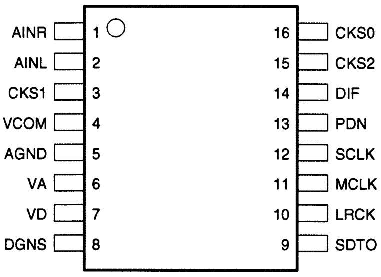
● Block Diagram


Y2.OUT/R.OUT/C.OUT
(CN4) GND
Cr.OUT/G.OUT
GND (CN3)
Cb.OUT/B.OUT
VCC (CN2)
N.C
Cb.IN/B.IN
GND (CN1)
Cr.IN/G.IN
VCC (CN1)
N.C
N.C
N.C
N.C
Y2.IN/R.IN
VCC (CS1)
Y1.IN
GND (CS1)
C.IN
GND (CN2)
VCC (CS2)
Y1.OUT
GND (CS3)
C.OUT
10K
GND (CS2)
CV.OUT/Y.OUT
GND (CS4)
N.C
N.C
VCC (B)
B.IN
VCC (Y)
Y4.IN
N.C
Y3.IN
N.C
Y2.IN
N.C
REG2
CV.IN
EXT-RGB_SW
CSYNC2.OUT
CSYNC.OUT
AGCCTL2
VCC (IC)
SCLK
SDATA
GND (IC)
AGCCTL1
B.OUT
GND (B)
Y.OUT/CV.OUT
GND (Y)
C.OUT/Cr.OUT/R.OUT
GND (C)
CV.OUT/Cb.OUT/G.OUT
GND (C V)
REG1
CV6.IN
Y.IN/CV.IN
N.C
C4.IN
N.C
C3.IN
N.C
C2.IN
VCC (C)
Cr.IN/R.IN
VCC (SY)
Cb.IN/G.IN
VCC (CV)
CV2.IN
GND (SY)
CV3.IN
N.C
CV4.IN
STAND_BY
CV5.IN
75Ω driver
LPF1
LPF2
6dB/7dB AMP
6dB/6dB AMP
SYNC SEP
pedestal CLAMP
CLAMP
Y/C MIX
CTL LOGIC
SERIAL DECORDER
S1/S2 PC.OUT
6dB AMP
0dB/6dB AMP
LPF
synctip CLAMP
CLIP PULSE GEN
V.SEP
SYNC LPF
SYNC SELECT
AGCAMP 0dB/3dB
pedestal CLAMP
synctip CLAMP
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60
61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

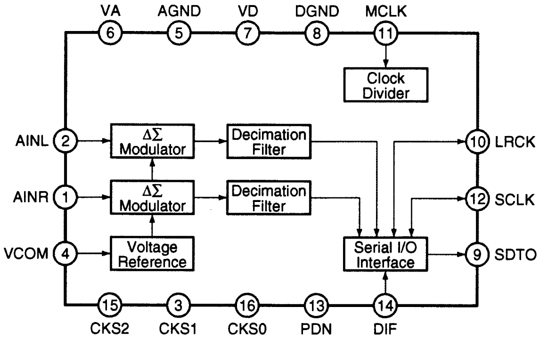
AK5381VT (MAIN ASSY : IC3101)

- 96kHz 24 bit ΔΣ ADC

Pin Arrangement (Top view)


AINR 1
AINL 2
CKS1 3
VCOM 4
AGND 5
VA 6
VD 7
DGNS 8
16 CKS0
15 CKS2
14 DIF
13 PDN
12 SCLK
11 MCLK
10 LRCK
9 SDTO

Block Diagram


VA 6
AGND 5
VD 7
DGND 8
MCLK 11
Clock Divider
AINL 2
ΔΣ Modulator
Decimation Filter
10 LRCK
AINR 1
ΔΣ Modulator
Decimation Filter
12 SCLK
VCOM 4
Voltage Reference
Serial I/O Interface
9 SDTO
15 CKS2
3 CKS1
16 CKS0
13 PDN
14 DIF

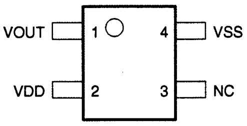
Pin Function

No.	Pin Name	I/O	Function
1	AINR	I	R ch analog input
2	AINL	I	L ch analog input
3	CKS1	I	Mode select 1
4	VCOM	O	Common voltage output, bias voltage of VA/2 and ADC input
5	AGND	–	Analog ground
6	VA	–	Analog power supply, 4.5 to 5.5V
7	VD	–	Digital power supply, 2.7 to 5.5V (fs = 4k to 48kHz), 3.0 to 5.5V (fs = 48k to 96kHz)
8	DGND	–	Digital ground
9	SDTO	O	Audio serial data output, outputs "L" in the power down mode.
10	LRCK	I/O	Channel clock I/O, outputs "L" by master mode in the power down mode.
11	MCLK	I	Master clock input
12	SCLK	I/O	Audio serial data clock, outputs "L" by master mode in the power down mode.
13	PDN	I	Power down mode "H": power up, "L": power down
14	DIF	I	Audio interface format, "H" : 24 bit I2S compatibility, "L" : 24 bit MSB justify
15	CKS2	I	Mode select 2
16	CKS0	I	Mode select 0

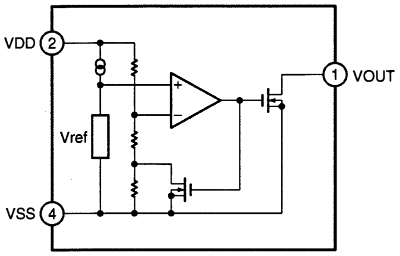
■ PST3428U (MAIN ASSY : IC4003)

- Reset IC

● Pin Arrangement (Top view)


VOUT
VDD
1
2
4
3
VSS
NC

● Block Diagram


VDD 2
VSS 4
Vref
+
−
1 VOUT

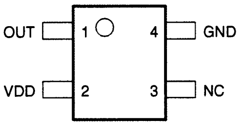
● Pin Function

No.	Pin Name	Function
1	VOUT	Reset signal output
2	VDD	Power supply / voltage detection
3	NC	Not connected
4	VSS	VSS

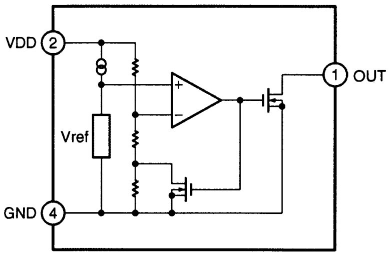
■ PST3809U (MAIN ASSY : IC4005)

- Reset IC

● Pin Arrangement (Top view)


OUT
VDD
1
2
4
3
GND
NC

● Block Diagram


VDD 2
GND 4
Vref
+
−
1 OUT

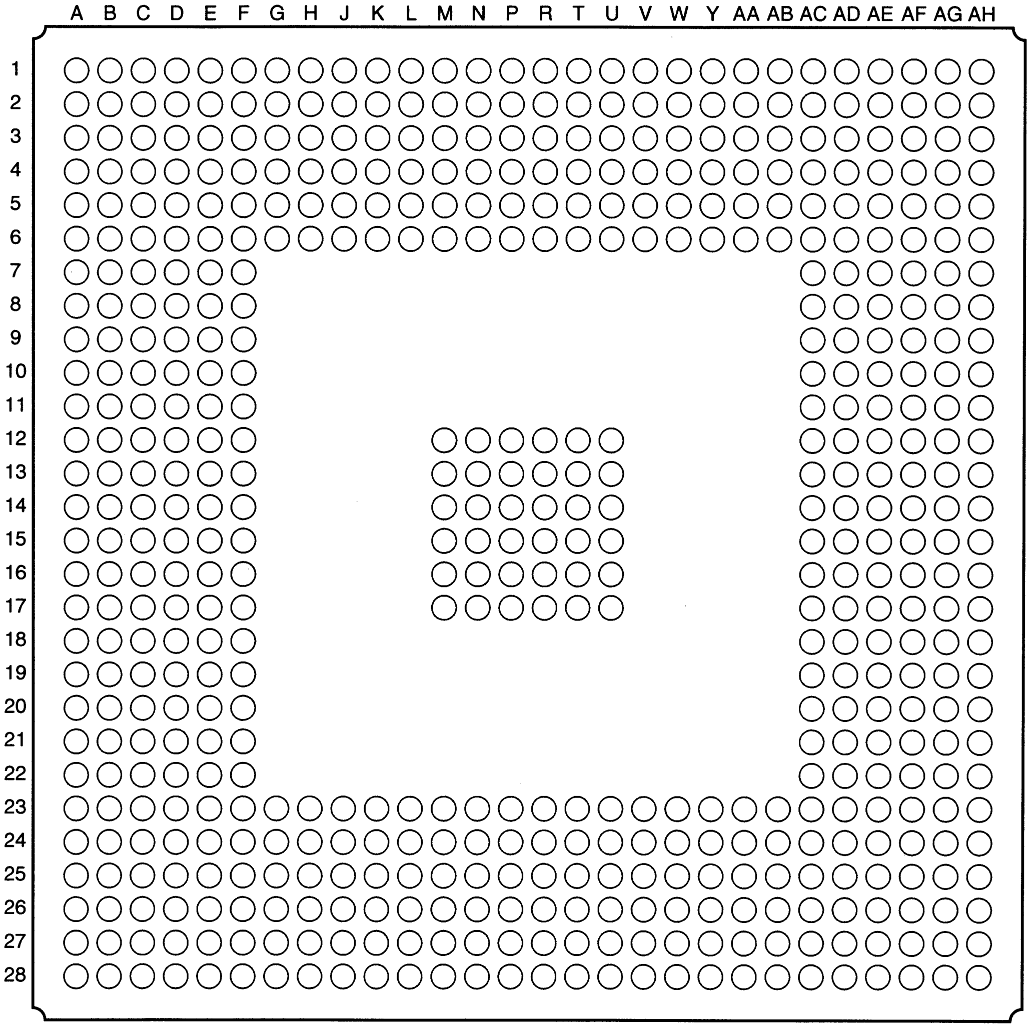
● Pin Function

No.	Pin Name	Function
1	OUT	Reset signal output
2	VDD	Power supply / voltage detection
3	NC	Not connected
4	GND	Ground

■ M65673WG-A (MAIN ASSY : IC1001)

- Signal Processing IC for DVD Recorder

● Pin Arrangement (Top view)


A B C D E F G H J K L M N P R T U V W Y AA AB AC AD AE AF AG AH
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28

● I/O buffer list

Buffer Name	Main Function	Remarks
PDIDGZ	Input buffer (5V tolerant)	
PDUDGZ	Input buffer (5V tolerant), pull-up	
PDDDGZ	Input buffer (5V tolerant), pull-down	
PDO04CDG	Output buffer, 4mA	
PDO08CDG	Output buffer, 8mA	
PDO0204DGZ	Output buffer, 2/4mA	
PDO0406DSGZ	Output buffer, 4/6mA	For SDRAM IF
PDO0406DSGZ×2	Output buffer, 8/12mA	For SDRAM IF
PDT0204DGZ	3 state output buffer, 2/4mA	
PDB04DGZ	Bidirectional buffer, 4mA	
PDB08DGZ	Bidirectional buffer, 8mA	
PDB0204DGZ	Bidirectional buffer, 2/4mA	
PDB0406DSGZ	Bidirectional buffer, 4/6mA	For SDRAM IF

● Pin Name list

	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	T	U	V	W	Y	AA	AB	AC	AD	AE	AF	AG	AH	
28	VDD	EDATA[23]	EDATA[22]	EDATA[20]	EDATA[18]	EDATA[16]	EADRS[0]	EBS[0]	ERAS	EDQM	EDATA[6]	EDATA[3]	EDATA[0]	AVDDAD8	BG8	VRB8	AVDDAD8	VRM10	AVDDAD10	PACKETEN	WM2DTO[2]	VDD	WMCLKO	WM1DTO[4]	WM1DTI[1]	WM1DTI[3]	HKEYPLS	VDD	28
27	AT1DATA[12]	EDATA[24]	EDATA[25]	EDATA[21]	EDATA[19]	EDATA[17]	EADRS[1]	EBS[1]	ECS	EWE	EDATA[7]	EDATA[4]	EDATA[1]	AVSSAD8	GIN	VRT8	DVSSAD10	CVBSIN	VBGR10	STREAM	WM2DTQ[4]	WM2DTO[6]	WM1DTO[1]	WM1DTO[6]	WM1DTI[4]	PEDCTL	REC656O[1]	REC656O[3]	27
26	AT1DATA[8]	AT1DATA[13]	AT1DATA[15]	EDATA[26]	EDATA[29]	EDATA[30]	EADRS[2]	EADRS[10]	EADRS[11]	ECAS	EDATA[8]	EDATA[5]	EDATA[2]	DVSSAD8	CRIN	CIN	VRBD10	VRT10	NBC10	SYNC	WM2DTO[3]	WM1DTO[0]	WM1DTO[5]	WM1DTI[2]	WM1DTI[7]	ACCCTL	REC656O[2]	AVDD2DA10	26
25	AT1DATA[7]	AT1DATA[6]	AT1DATA[14]	EDATA[27]	EDATA28]	EDATA[31]	EADRS[4]	EADRS[6]	EADRS[8]	ECLKEN	EDATA[9]	EDATA[11]	EDATA[13]	DVDDAD8	AVDDAD8	AVSSAD8	VRB10	AVSSAD10	TSRW	WM2DTO[0]	WM2DTO[7]	WM1DTO[2]	WM1DTI[0]	WM1DTI[6]	AGCCTL	REC656O[5]	YOUT	AVSS2DA10	25
24	AT1DATA[2]	AT1DATA[1]	AT1DATA[5]	AT1DATA[10]	AT1DATA[14]	EDATA[3]	EADRS[5]	EADRS[7]	EADRS[9]	ECLKO	EDATA[10]	EDATA[12]	EDATA[14]	EDATA[15]	AVSSAD8	DVDDAD10	VRTD10	TSCLK	WM2DTO[1]	WM2DTO[4]	WM1DTO[3]	WM2DTC[1]	WM1DTI[5]	REC656O[0]	COUT	IREF[1]	ROUT	AVDD1DA10	24
23	AT1DIOW	AT1DMACK	AT1DATA[0]	AT1DATA[3]	AT1DATA[9]	GND	VDD3	VDD	GND	VDD3	VDD	GND	VDD3	VDD	GND	VDD2	VDD	GND	VDD2	VDD	GND	VDD3	VDD	REC656O[4]	AVDD1DA10	BOUT	DVACK	DVREQ	23
22	AT1ADR[1]	AT1INTRQ	AT1DIOR	AT1RESET	AT1DATA4]	VDD3																	VDD3	IREF[0]	AVSS1DA10	REC656O[6]	DVVIDEO[0]	DVVIDEO[1]	22
21	AT1CS[0]	AT1CS[1]	AT1ADR[0]	AT1IORDY	AT1DMARQ	VDD																	VDD	GOUT	REC656O[7]	DVVIDEO[3]	DVVIDEO[4]	PLL2AVSS	21
20	AT2DATA[11]	AT2DATA[12]	AT1DATA[13]	AT2DATA[14]	AT1ADR[2]	GND																	GND	DVVIDEO[2]	ADMCLKI	PLL2AVDD	DVVCLKI	DVVIDEO[7]	20
19	AT2DATA[6]	AT2DATA[7]	AT2DATA[8]	AT2DATA[10]	AT2DATA[15]	VDD3																	VDD3	R656CLKI	DVVIDEO[5]	REC656I[0]	REC656I[1]	REC656I[2]	19
18	AT2DATA[1]	AT2DATA[2]	AT2DATA[4]	AT2DATA[5]	AT2DATA[9]	VDD																	VDD	DVVIDEO[6]	REC656I[3]	REC656I[4]	REC656I[6]	REC656I[7]	18
17	AT2DIOW	AT2DMARQ	AT2RESET	AT2DATA[0]	AT2DATA[3]	GND						GND	GND	GND	GND	GND	GND						GND	REC656I[5]	PXCLK	DVVCLKO	PLLRST	TRST	17
16	AT2ADR[2]	AT2INTRQ	AT2IORDY	AT2DIOR	AT2DMACK	VDD3						GND	GND	GND	GND	GND	GND						VDD3	TCK	TDI	TDO	TMS	PLLON	16
15	AT2MODE	AT2CS[0]	AT2CS[1]	AT2ADR[0]	AT2ADR[1]	VDD						GND	GND	GND	GND	GND	GND						VDD	VIPWM	CSYNC	TESTMOD[0]	TESTMOD[1]	TESTMOD[2]	15
14	RESET	VDD	DBI	TRACE	VDD	GND						GND	GND	GND	GND	GND	GND						VDD	TESTMOD[6]	VDD	TESTMOD[5]	TESTMOD[4]	TESTMOD[3]	14
13	PCO	PLL3AVSS	PLL3AVDD	VMCLK	PLL1AVDD	VDD3						GND	GND	GND	GND	GND	GND						VDD3	HADRS[28]	HADRS[29]	HADRS[24]	HADRS[25]	HADRS[26]	13
12	PLL1AVSS	ADCCLKO	VDD	DVAMCLKO	DVAMCLKI	VDD						GND	GND	GND	GND	GND	GND						GND	HADRS[27]	HADRS[19]	HADRS[18]	HADRS[23]	HADRS[22]	12
11	DACCLKO	AMCLK1	AMCLK2	ARDATA[1]	ARDATA[0]	GND																	VDD	HADRS[15]	HADRS[16]	HADRS[17]	HADRS[20]	HADRS[21]	11
10	ARDATA[14]	ARDATA[15]	ARDATA[4]	ARDATA[3]	ARDATA[2]	VDD2																	VDD3	HDCS[1]	HDCS[0]	HCAS	HRAS	HCLKEN	10
9	ARDATA[11]	ARDATA[12]	ARDATA[13]	ARDATA[6]	ARDATA[5]	VDD																	GND	HDATA[7]	HDWE	DQMWS[0]	DQMWS[1]	HCLKO	9
8	ARDATA[10]	ARDATA[9]	ARWE	ARDQM[0]	ARDATA[7]	GND																	VDD	HDATA[6]	HDATA[5]	HDATA[4]	HDATA[8]	HDATA[9]	8
7	ARDATA[8]	ARDQM[1]	ARCS[0]	ARRAS	ARCAS	VDD3																	VDD3	HADRS[9]	HDATA[2]	HDATA[3]	HDATA11]	HDATA[10]	7
6	ARCLKO	ARADRS[12]	ARADRS[13]	ARADRS[14]	ARCS[1]	VDD	VDD3	GND	VDD	VDD3	VDD	GND	VDD3	VDD	GND	VDD3	VDD	GND	VDD3	VDD	GND	VDD3	VDD	HADRS[10]	HDATA[1]	HDATA[0]	HDATA[12]	HDATA[13]	6
5	ARADRS[11]	ARADRS[9]	ARADRS[1]	ARADRS[0]	ARADRS[10]	SPDIFI	ACMOD[0]	BCKO	DVDADT[4]	DVDAADR[0]	SCIDATA[0]	SPIDATAO	DDATA[11]	DDATA[8]	DCLKO	DADRS[9]	DADRS[8]	INT[7]	INT[1]	CTS[2]	RTS[0]	TX[3]	HWAIT	HCS[5]	HADRS[11]	HADRS[12]	HDATA[15]	HDATA[14]	5
4	ARADRS[8]	ARADRS[3]	ARADRS[2]	SRCBCKI	SRCDATAO	ACMOD[1]	LRCKO	DVDADT[3]	DVDAREQ	SCIDATA[1]	SPICS	DDATA[14]	DDATA[12]	DDATA[9]	DDQM[1]	DADRS[11]	DADRS[7]	DADRS[6]	INT[6]	INT[2]	CTS[1]	RX[3]	TX[2]	HDACK[0]	VDD	HCS[0]	HADRS[13]	HADRS[14]	4
3	ARADRS[7]	ARADRS[6]	SRCLRCKI	SRCLRCKO	DVBCK	ADATAI	DVDADT[5]	DVDADT[1]	DVDAACK	VDD	SPIDATAI	DDATA[15]	DDATA[13]	DDATA[10]	DWE	DCS	DADRS[10]	DADRS[5]	DADRS[4]	INT[3]	SCLK[0]	CTS[0]	RX[2]	TX[1]	HDREQ[0]	HCS[3]	HCS[2]	HADRS[30]	3
2	ARADRS[5]	ARADRS[4]	SRCBCKO	SPDIFO	BCKI	DVDADT[7]	DVDADT[6]	DVDADT[0]	SCICS[1]	SCICLK[1]	SPICLK	DDATA[2]	DDATA[3]	DDATA[6]	DDQM[0]	DRAS	DBS[1]	DADRS[1]	DADRS[2]	INT[4]	SCLK[1]	RTS[3]	RTS[2]	RX[1]	HDACK[1]	HOE	HCS[4]	HCS[1]	2
1	VDD	SRCDATAI	DVLRCK	DVADATA	LRCKI	ADATAO	DVDADT[2]	DVDAADR[1]	SCICS[0]	SCICLK[0]	DDATA[0]	DDATA[1]	DDATA[4]	DDATA[5]	DDATA[7]	DCAS	DBS[0]	DADRS[0]	DADRS[3]	INT[5]	INT[0]	CTS[3]	RTS[1]	RX[0]	TX[0]	HDREQ[1]	NC	NC	1
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	T	U	V	W	Y	AA	AB	AC	AD	AE	AF	AG	AH	

VDD : 1.2V Power supply
VDD3 : 3.3V Power supply
GND : Ground

● Pin Function

No.	BALL Address	Pin Name	I/O	Function	No.	BALL Address	Pin Name	I/O	Function
1	VDD3	VDD3	–	3.3V I/O power supply	56	V26	VRT10	–	TOP side reference voltage
2	GND	GND	–	Ground	57	V28	VRM10	–	Common voltage
3	VDD	VDD	–	1.2V LOGIC power supply	58	U25	VRB10	–	Bottom side reference voltage
4	AH28	VDD	–	1.2V LOGIC power supply	59	U26	VRBD10	I/O	Analog test bus (for debugging)
5	AF26	ACCCTL	O		60	U27	DVSSAD10	–	ADC part digital ground
6	AF27	PEDCTL	O	VIDEO-Analog, Output buffer	61	T24	DVDDAD10	–	ADC part digital power supply (3.3V)
7	AG28	HKEYPLS	O	VIDEO-Analog, Output buffer	62	GND	GND	–	Ground
8	GND	GND	–	Ground	63	VDD	VDD	–	1.2V LOGIC power supply
9	AE26	WM1DTI[7]	I/O	WM/VWM, Bidirectional buffer	64	U28	AVDDAD8	–	
10	AD25	WM1DTI[6]	I/O	WM/VWM, Bidirectional buffer	65	T25	AVSSAD8	–	
11	AC24	WM1DTI[5]	I/O	WM/VWM, Bidirectional buffer	66	T26	CIN	I	VIDEO-Analog
12	AE27	WM1DTI[4]	I/O	WM/VWM, Bidirectional buffer	67	T27	VRT8	–	VIDEO-Analog
13	AF28	WM1DTI[3]	I/O	WM/VWM, Bidirectional buffer	68	T28	VRB8	–	VIDEO-Analog
14	AD26	WM1DTI[2]	I/O	WM/VWM, Bidirectional buffer	69	R25	AVDDAD8	–	
15	AE28	WM1DTI[1]	I/O	WM/VWM, Bidirectional buffer	70	R24	AVSSAD8	–	
16	AC25	WM1DTI[0]	I/O	WM/VWM, Bidirectional buffer	71	R26	CRIN	I	VIDEO-Analog
17	AB24	WM1DTO[7]	I/O	WM/VWM, Bidirectional buffer	72	R28	BG8	–	VIDEO-Analog
18	VDD	VDD	–	1.2V LOGIC power supply	73	P28	AVDDAD8	–	
19	GND	GND	–	Ground	74	P27	AVSSAD8	–	
20	AD27	WM1DTO[6]	I/O	WM/VWM, Bidirectional buffer	75	R27	GIN	I	VIDEO-Analog
21	AC26	WM1DTO[5]	I/O	WM/VWM, Bidirectional buffer	76	P26	DVSSAD8	–	
22	AD28	WM1DTO[4]	I/O	WM/VWM, Bidirectional buffer	77	P25	DVDDAD8	–	
23	AA24	WM1DTO[3]	I/O	WM/VWM, Bidirectional buffer	78	GND	GND	–	Ground
24	AB25	WM1DTO[2]	I/O	WM/VWM, Bidirectional buffer	79	P24	EDATA[15]	I/O	SDRAM ENC, Bidirectional buffer
25	VDD	VDD	–	1.2V LOGIC power supply	80	VDD3	VDD3	–	3.3V I/O power supply
26	AC27	WM1DTO[1]	I/O	WM/VWM, Bidirectional buffer	81	N28	EDATA[0]	I/O	SDRAM ENC, Bidirectional buffer
27	GND	GND	–	Ground	82	N27	EDATA[1]	I/O	SDRAM ENC, Bidirectional buffer
28	AC28	WMCLKO	O	WM/VWM, Output buffer	83	N26	EDATA[2]	I/O	SDRAM ENC, Bidirectional buffer
29	VDD3	VDD3	–	3.3V I/O power supply	84	VDD	VDD	–	1.2V LOGIC power supply
30	AB26	WM1DTO[0]	I/O	WM/VWM, Bidirectional buffer	85	N25	EDATA[13]	I/O	SDRAM ENC, Bidirectional buffer
31	AA25	WM2DTO[7]	O	WM/VWM, Output buffer	86	GND	GND	–	Ground
32	AB27	WM2DTO[6]	O	WM/VWM, Output buffer	87	M28	EDATA[3]	I/O	SDRAM ENC, Bidirectional buffer
33	AB28	VDD	–	1.2V LOGIC power supply	88	GND	GND	–	Ground
34	Y24	WM2DTO[5]	O	WM/VWM, Output buffer	89	N24	EDATA[14]	I/O	SDRAM ENC, Bidirectional buffer
35	AA27	WM2DTO[4]	O	WM/VWM, Output buffer	90	M27	EDATA[4]	I/O	SDRAM ENC, Bidirectional buffer
36	AA26	WM2DTO[3]	O	WM/VWM, Output buffer	91	M26	EDATA[5]	I/O	SDRAM ENC, Bidirectional buffer
37	AA28	WM2DTO[2]	O	WM/VWM, Output buffer	92	VDD3	VDD3	–	3.3V I/O power supply
38	W24	WM2DTO[1]	O	WM/VWM, Output buffer	93	M25	EDATA[11]	I/O	SDRAM ENC, Bidirectional buffer
39	GND	GND	–	Ground	94	L28	EDATA[6]	I/O	SDRAM ENC, Bidirectional buffer
40	Y25	WM2DTO[0]	O	WM/VWM, Output buffer	95	L27	EDATA[7]	I/O	SDRAM ENC, Bidirectional buffer
41	GND	GND	–	Ground	96	VDD	VDD	–	1.2V LOGIC power supply
42	Y26	SYNC	I/O	TS OUT, Bidirectional buffer	97	M24	EDATA[12]	I/O	SDRAM ENC, Bidirectional buffer
43	Y27	STREAM	I/O	TS OUT,Bidirectional buffer	98	GND	GND	–	Ground
44	Y28	PACKETEN	I/O	TS OUT,Bidirectional buffer	99	L26	EDATA[8]	I/O	SDRAM ENC, Bidirectional buffer
45	VDD3	VDD3	–	3.3V IO power supply	100	GND	GND	–	Ground
46	W25	TSRW	O	TS OUT,Output buffer	101	L25	EDATA[9]	I/O	SDRAM ENC, Bidirectional buffer
47	GND	GND	–	Ground	102	K28	EDQM	O	SDRAM ENC, Output buffer
48	V24	TSCLK	O	TS OUT,Output buffer	103	K27	EWE	O	SDRAM ENC, Output buffer
49	VDD3	VDD3	–	3.3V I/O power supply	104	VDD3	VDD3	–	3.3V I/O power supply
50	W26	NBC10	–	Bias current adjustment terminal	105	K26	ECAS	O	SDRAM ENC, Output buffer
51	W27	VBGR10	I/O	Analog test bus (for debugging)	106	L24	EDATA[10]	I/O	SDRAM ENC, Bidirectional buffer
52	W28	AVDDAD10	–	ADC part analog power supply (3.3V)	107	K25	ECLKEN	O	Output buffer, 4/6mA
53	V25	AVSSAD10	–	ADC part analog Ground	108	VDD	VDD	–	1.2V LOGIC power supply
54	V27	CVBSIN	I	Analog Input	109	J28	ERAS	O	SDRAM ENC, Output buffer
55	U24	VRTD10	–	Input common bias	110	GND	GND	–	Ground

No.	BALL Address	Pin Name	I/O	Function	No.	BALL Address	Pin Name	I/O	Function
111	J27	ECS	O	SDRAM ENC, Output buffer	166	VDD3	VDD3	–	3.3V I/O power supply
112	GND	GND	–	Ground	167	C25	AT1DATA[11]	I/O	ATAPI-DVD, Bidirectional buffer
113	J26	EADRS[11]	O	SDRAM ENC, Output buffer	168	D24	AT1DATA[10]	I/O	ATAPI-DVD, Bidirectional buffer
114	J25	EADRS[8]	O	SDRAM ENC, Output buffer	169	E23	AT1DATA[9]	I/O	ATAPI-DVD, Bidirectional buffer
115	GND	GND	–	Ground	170	GND	GND	–	Ground
116	K24	ECLKO	O	SDRAM ENC, Output buffer	171	A26	AT1DATA[8]	I/O	ATAPI-DVD, Bidirectional buffer
117	VDD3	VDD3	–	3.3V I/O power supply	172	A25	AT1DATA[7]	I/O	ATAPI-DVD, Bidirectional buffer
118	H28	EBS[0]	O	SDRAM ENC, Output buffer	173	B25	AT1DATA[6]	I/O	ATAPI-DVD, Bidirectional buffer
119	H27	EBS[1]	O	SDRAM ENC, Output buffer	174	GND	GND	–	Ground
120	H26	EADRS[10]	O	SDRAM ENC, Output buffer	175	C24	AT1DATA[5]	I/O	ATAPI-DVD, Bidirectional buffer
121	VDD	VDD	–	1.2V LOGIC power supply	176	VDD3	VDD3	–	3.3V I/O power supply
122	G28	EADRS[0]	O	SDRAM ENC, Output buffer	177	E22	AT1DATA[4]	I/O	ATAPI-DVD, Bidirectional buffer
123	GND	GND	–	Ground	178	VDD	VDD	–	1.2V LOGIC power supply
124	J24	EADRS[9]	O	SDRAM ENC, Output buffer	179	D23	AT1DATA[3]	I/O	ATAPI-DVD, Bidirectional buffer
125	GND	GND	–	Ground	180	A24	AT1DATA[2]	I/O	ATAPI-DVD, Bidirectional buffer
126	G27	EADRS[1]	O	SDRAM ENC, Output buffer	181	B24	AT1DATA[1]	I/O	ATAPI-DVD, Bidirectional buffer
127	H25	EADRS[6]	O	SDRAM ENC, Output buffer	182	GND	GND	–	Ground
128	G26	EADRS[2]	O	SDRAM ENC, Output buffer	183	C23	AT1DATA[0]	I/O	ATAPI-DVD, Bidirectional buffer
129	VDD3	VDD3	–	3.3V I/O power supply	184	D22	AT1RESET	O	Output buffer,8mA
130	F27	EDATA[17]	I/O	SDRAM ENC, Bidirectional buffer	185	E21	AT1DMARQ	I	ATAPI-DVD, Input buffer
131	F28	EDATA[16]	I/O	SDRAM ENC, Bidirectional buffer	186	GND	GND	–	Ground
132	H24	EADRS[7]	O	SDRAM ENC, Output buffer	187	B23	AT1DMACK	O	ATAPI-DVD, Output buffer
133	VDD	VDD	–	1.2V LOGIC power supply	188	VDD3	VDD3	–	3.3V I/O power supply
134	G25	EADRS[4]	O	SDRAM ENC, Output buffer	189	A23	AT1DIOW	O	ATAPI-DVD, Output buffer
135	GND	GND	–	Ground	190	VDD	VDD	–	1.2V LOGIC power supply
136	F26	EDATA[30]	I/O	SDRAM ENC, Bidirectional buffer	191	C22	AT1DIOR	O	ATAPI-DVD, Output buffer
137	GND	GND	–	Ground	192	D21	AT1IORDY	I	ATAPI-DVD, Input buffer
138	E27	EDATA[19]	I/O	SDRAM ENC, Bidirectional buffer	193	B22	AT1INTRQ	I	ATAPI-DVD, Input buffer
139	E28	EDATA[18]	I/O	SDRAM ENC, Bidirectional buffer	194	GND	GND	–	Ground
140	F25	EDATA[31]	I/O	SDRAM ENC, Bidirectional buffer	195	E20	AT1ADR[2]	O	ATAPI-DVD, Output buffer
141	VDD3	VDD3	–	3.3V I/O power supply	196	A22	AT1ADR[1]	O	ATAPI-DVD, Output buffer
142	E26	EDATA[29]	I/O	SDRAM ENC, Bidirectional buffer	197	C21	AT1ADR[0]	O	ATAPI-DVD, Output buffer
143	G24	EADRS[5]	O	SDRAM ENC, Output buffer	198	GND	GND	–	Ground
144	D28	EDATA[20]	I/O	SDRAM ENC, Bidirectional buffer	199	B21	AT1CS[1]	O	ATAPI-DVD, Output buffer
145	VDD	VDD	–	1.2V LOGIC power supply	200	VDD3	VDD3	–	3.3V I/O power supply
146	D27	EDATA[21]	I/O	SDRAM ENC, Bidirectional buffer	201	A21	AT1CS[0]	O	ATAPI-DVD, Output buffer
147	GND	GND	–	Ground	202	VDD	VDD	–	1.2V LOGIC power supply
148	C28	EDATA[22]	I/O	SDRAM ENC, Bidirectional buffer	203	E19	AT2DATA[15]	I/O	ATAPI-HDD, Bidirectional buffer
149	GND	GND	–	Ground	204	D20	AT2DATA[14]	I/O	ATAPI-HDD, Bidirectional buffer
150	F24	EADRS[3]	O	SDRAM ENC, Output buffer	205	C20	AT2DATA[13]	I/O	ATAPI-HDD, Bidirectional buffer
151	E25	EDATA[28]	I/O	SDRAM ENC, Bidirectional buffer	206	GND	GND	–	Ground
152	D26	EDATA[26]	I/O	SDRAM ENC, Bidirectional buffer	207	B20	AT2DATA[12]	I/O	ATAPI-HDD, Bidirectional buffer
153	VDD3	VDD3	–	3.3V I/O power supply	208	A20	AT2DATA[11]	I/O	ATAPI-HDD, Bidirectional buffer
154	B28	EDATA[23]	I/O	SDRAM ENC, Bidirectional buffer	209	D19	AT2DATA[10]	I/O	ATAPI-HDD, Bidirectional buffer
155	C27	EDATA[25]	I/O	SDRAM ENC, Bidirectional buffer	210	GND	GND	–	Ground
156	B27	EDATA24]	I/O	SDRAM ENC, Bidirectional buffer	211	E18	AT2DATA[9]	I/O	ATAPI-HDD, idirectional buffer
157	VDD	VDD	–	1.2V LOGIC power supply	212	VDD3	VDD3	–	3.3V I/O power supply
158	D25	EDATA[27]	I/O	SDRAM ENC, Bidirectional buffer	213	C19	AT2DATA[8]	I/O	ATAPI-HDD, Bidirectional buffer
159	GND	GND	–	Ground	214	VDD	VDD	–	1.2V LOGIC power supply
160	C26	AT1DATA[15]	I/O	ATAPI-DVD, Bidirectional buffer	215	B19	AT2DATA[7]	I/O	ATAPI-HDD, Bidirectional buffer
161	E24	AT1DATA[14]	I/O	ATAPI-DVD, Bidirectional buffer	216	A19	AT2DATA[6]	I/O	ATAPI-HDD, Bidirectional buffer
162	GND	GND	–	Ground	217	D18	AT2DATA[5]	I/O	ATAPI-HDD, Bidirectional buffer
163	A28	VDD	–	1.2V LOGIC power supply	218	GND	GND	–	Ground
164	B26	AT1DATA[13]	I/O	ATAPI-DVD, Bidirectional buffer	219	C18	AT2DATA[4]	I/O	ATAPI-HDD, Bidirectional buffer
165	A27	AT1DATA[12]	I/O	ATAPI-DVD, Bidirectional buffer	220	E17	AT2DATA[3]	I/O	ATAPI-HDD, Bidirectional buffer

No.	BALL Address	Pin Name	I/O	Function	No.	BALL Address	Pin Name	I/O	Function
221	B18	AT2DATA[2]	I/O	ATAPI-HDD, Bidirectional buffer	276	VDD3	VDD3	–	3.3V I/O power supply
222	GND	GND	–	Ground	277	C11	AMCLK2	I	CLOCK, Input buffer
223	A18	AT2DATA[1]	I/O	ATAPI-HDD, Bidirectional buffer	278	GND	GND	–	Ground
224	VDD3	VDD3	–	3.3V I/O power supply	279	D11	ARDATA[1]	I/O	SDRAM-ATAPI, Bidirectional buffer
225	D17	AT2DATA[0]	I/O	ATAPI-HDD, Bidirectional buffer	280	VDD3	VDD3	–	3.3V I/O power supply
226	VDD	VDD	–	1.2V LOGIC power supply	281	A10	ARDATA[14]	I/O	SDRAM-ATAPI, Bidirectional buffer
227	C17	AT2RESET	I/O	ATAPI-HDD, Bidirectional buffer	282	VDD	VDD	–	1.2V LOGIC power supply
228	B17	AT2DMARQ	I	ATAPI-HDD, Input buffer	283	B10	ARDATA[15]	I/O	SDRAM-ATAPI, Bidirectional buffer
229	E16	AT2DMACK	O	ATAPI-HDD, Output buffer	284	E11	ARDATA[0]	I/O	SDRAM-ATAPI, Bidirectional buffer
230	GND	GND	–	Ground	285	C10	ARDATA[4]	I/O	SDRAM-ATAPI, Bidirectional buffer
231	A17	AT2DIOW	O	ATAPI-HDD, Output buffer	286	GND	GND	–	Ground
232	D16	AT2DIOR	O	ATAPI-HDD, Output buffer	287	D10	ARDATA[3]	I/O	SDRAM-ATAPI, Bidirectional buffer
233	C16	AT2IORDY	I	ATAPI-HDD, Input buffer	288	A9	ARDATA[11]	I/O	SDRAM-ATAPI, Bidirectional buffer
234	GND	GND	–	Ground	289	B9	ARDATA[12]	I/O	SDRAM-ATAPI, Bidirectional buffer
235	B16	AT2INTRQ	I	ATAPI-HDD, Input buffer	290	GND	GND	–	Ground
236	VDD3	VDD3	–	3.3V I/O power supply	291	C9	ARDATA[13]	I/O	SDRAM-ATAPI, Bidirectional buffer
237	A16	AT2ADR[2]	I/O	ATAPI-HDD, Bidirectional buffer	292	E10	ARDATA[2]	I/O	SDRAM-ATAPI, Bidirectional buffer
238	VDD	VDD	–	1.2V LOGIC power supply	293	D9	ARDATA[6]	I/O	SDRAM-ATAPI, Bidirectional buffer
239	E15	AT2ADR[1]	I/O	ATAPI-HDD, Bidirectional buffer	294	VDD3	VDD3	–	3.3V I/O power supply
240	GND	GND	–	Ground	295	A8	ARDATA[10]	I/O	SDRAM-ATAPI, Bidirectional buffer
241	D15	AT2ADR[0]	I/O	ATAPI-HDD, Bidirectional buffer	296	B8	ARDATA[9]	I/O	SDRAM-ATAPI, Bidirectional buffer
242	VDD	VDD	–	1.2V LOGIC power supply	297	C8	ARWE	O	SDRAM-ATAPI, Output buffer
243	C15	AT2CS[1]	O	ATAPI-HDD, Output buffer	298	VDD	VDD	–	1.2V LOGIC power supply
244	GND	GND	–	Ground	299	A7	ARDATA[8]	I/O	SDRAM-ATAPI, Bidirectional buffer
245	B15	AT2CS[0]	O	ATAPI-HDD, Output buffer	300	E9	ARDATA[5]	I/O	SDRAM-ATAPI, Bidirectional buffer
246	VDD	VDD	–	1.2V LOGIC power supply	301	D8	ARDQM[0]	O	SDRAM-ATAPI, Output buffer
247	A15	AT2MODE	I	ATAPI-HDD, Input buffer	302	GND	GND	–	Ground
248	GND	GND	–	Ground	303	B7	ARDQM[1]	O	SDRAM-ATAPI, Output buffer
249	GND	GND	–	Ground	304	C7	ARCS[0]	O	SDRAM-ATAPI, Output buffer
250	A14	RESET	I	Input buffer (5V tolerant)	305	VDD3	VDD3	–	3.3V I/O power supply
251	VDD3	VDD3	–	3.3V I/O power supply	306	A6	ARCLKO	O	SDRAM-ATAPI, Output buffer
252	B14	VDD	–	1.2V LOGIC power supply	307	GND	GND	–	Ground
253	C14	DBI	I	TEST, Input buffer	308	B6	ARADRS[12]	O	SDRAM-ATAPI, Output buffer
254	GND	GND	–	Ground	309	E8	ARDATA[7]	I/O	SDRAM-ATAPI, Bidirectional buffer
255	D14	TRACE	I	TEST, Input buffer	310	D7	ARRAS	O	SDRAM-ATAPI, Output buffer
256	E14	VDD	–	1.2V LOGIC power supply	311	VDD3	VDD3	–	3.3V I/O power supply
257	A13	PCO	O	CLOCK, 3 state output buffer	312	A5	ARADRS[11]	O	SDRAM-ATAPI, Output buffer
258	GND	GND	–	Ground	313	C6	ARADRS[13]	O	SDRAM-ATAPI, Output buffer
259	B13	PLL3AVSS	–		314	B5	ARADRS[9]	O	SDRAM-ATAPI, Output buffer
260	C13	PLL3AVDD	–		315	VDD	VDD	–	1.2V LOGIC power supply
261	D13	VMCLK	I	CLOCK, Input buffer	316	E7	ARCAS	O	SDRAM-ATAPI, Output buffer
262	E13	PLL1AVDD	–		317	D6	ARADRS[14]	O	SDRAM-ATAPI, Output buffer
263	A12	PLL1AVSS	–		318	C5	ARADRS[1]	O	SDRAM-ATAPI, Output buffer
264	VDD3	VDD3	–	3.3V I/O power supply	319	GND	GND	–	Ground
265	B12	ADCCLKO	O	CLOCK, Output buffer	320	B4	ARADRS[3]	O	SDRAM-ATAPI, Output buffer
266	GND	GND	–	Ground	321	A4	ARADRS[8]	O	SDRAM-ATAPI, Output buffer
267	C12	VDD	–	1.2V LOGIC power supply	322	A3	ARADRS[7]	O	SDRAM-ATAPI, Output buffer
268	VDD3	VDD3	–	3.3V I/O power supply	323	GND	GND	–	Ground
269	D12	DVAMCLKO	O	CLOCK, Output buffer	324	E6	ARCS[1]	O	SDRAM-ATAPI, Output buffer
270	GND	GND	–	Ground	325	D5	ARADRS[0]	O	SDRAM-ATAPI, Output buffer
271	A11	DACCLKO	O	CLOCK, Output buffer	326	C4	ARADRS[2]	O	SDRAM-ATAPI, Output buffer
272	VDD3	VDD3	–	3.3V I/O power supply	327	VDD3	VDD3	–	3.3V I/O power supply
273	E12	DVAMCLKI	I	AUDIO CLOCK, Input buffer	328	A2	ARADRS[5]	O	SDRAM-ATAPI, Output buffer
274	GND	GND	–	Ground	329	B3	ARADRS[6]	O	SDRAM-ATAPI, Output buffer
275	B11	AMCLK1	I	CLOCK, Input buffer	330	B2	ARADRS[4]	O	SDRAM-ATAPI, Output buffer

No.	BALL Address	Pin Name	I/O	Function	No.	BALL Address	Pin Name	I/O	Function
331	GND	GND	–	Ground	386	VDD	VDD	–	1.2V LOGIC power supply
332	E5	ARADRS[10]	O	SDRAM-ATAPI, Output buffer	387	GND	GND	–	Ground
333	D4	SRCBCKI	I	AUDIO, Input buffer	388	L3	SPIDATAI	I/O	HOST, Bidirectional buffer
334	VDD3	VDD3	–	3.3V I/O power supply	389	VDD	VDD	–	1.2V LOGIC power supply
335	C3	SRCLRCKI	I	AUDIO, Input buffer	390	M5	SPIDATAO	I/O	HOST, Bidirectional buffer
336	B1	SRCDATAI	I	AUDIO, Input buffer	391	GND	GND	–	Ground
337	A1	VDD	–	1.2V LOGIC power supply	392	L2	SPICLK	I/O	HOST, Bidirectional buffer
338	GND	GND	–	Ground	393	GND	GND	–	Ground
339	C2	SRCBCKO	O	AUDIO, Output buffer	394	L1	DDATA[0]	I/O	SDRAM-DEC, Bidirectional buffer
340	VDD	VDD	–	1.2V LOGIC power supply	395	VDD3	VDD3	–	3.3V I/O power supply
341	D3	SRCLRCKO	O	AUDIO, Output buffer	396	M4	DDATA[14]	I/O	SDRAM-DEC, Bidirectional buffer
342	E4	SRCDATAO	O	AUDIO, Output buffer	397	M3	DDATA[15]	I/O	SDRAM-DEC, Bidirectional buffer
343	F5	SPDIFI	I	AUDIO, Input buffer	398	M2	DDATA[2]	I/O	SDRAM-DEC, Bidirectional buffer
344	D2	SPDIFO	O	AUDIO, Output buffer	399	VDD	VDD	–	1.2V LOGIC power supply
345	C1	DVLRCK	I/O	AUDIO, Bidirectional buffer	400	N5	DDATA[11]	I/O	SDRAM-DEC, Bidirectional buffer
346	E3	DVBCK	I/O	AUDIO, Bidirectional buffer	401	GND	GND	–	Ground
347	D1	DVADATA	I/O	AUDIO, Bidirectional buffer	402	M1	DDATA[1]	I/O	SDRAM-DEC, Bidirectional buffer
348	F4	ACMOD[1]	I	AUDIO, Input buffer	403	GND	GND	–	Ground
349	G5	ACMOD[0]	I	AUDIO, Input buffer	404	N4	DDATA[12]	I/O	SDRAM-DEC, Bidirectional buffer
350	E1	LRCKI	I	AUDIO, Input buffer	405	N3	DDATA[13]	I/O	SDRAM-DEC, Bidirectional buffer
351	E2	BCKI	I	AUDIO, Input buffer	406	N2	DDATA[3]	I/O	SDRAM-DEC, Bidirectional buffer
352	GND	GND	–	Ground	407	VDD3	VDD3	–	3.3V I/O power supply
353	F3	ADATAI	I	AUDIO, Input buffer	408	N1	DDATA[4]	I/O	SDRAM-DEC, Bidirectional buffer
354	GND	GND	–	Ground	409	P5	DDATA[8]	I/O	SDRAM-DEC, Bidirectional buffer
355	G4	LRCKO	O	AUDIO, Output buffer	410	P4	DDATA[9]	I/O	SDRAM-DEC, Bidirectional buffer
356	VDD	VDD	–	1.2V LOGIC power supply	411	VDD	VDD	–	1.2V LOGIC power supply
357	H5	BCKO	O	AUDIO, Output buffer	412	P3	DDATA[10]	I/O	SDRAM-DEC, Bidirectional buffer
358	F1	ADATAO	O	DVD-AUDIO, Output buffer	413	GND	GND	–	Ground
359	F2	DVDADT[7]	O	DVD-AUDIO, Output buffer	414	P2	DDATA[6]	I/O	SDRAM-DEC, Bidirectional buffer
360	G2	DVDADT[6]	O	DVD-AUDIO, Output buffer	415	GND	GND	–	Ground
361	G3	DVDADT[5]	O	DVD-AUDIO, Output buffer	416	P1	DDATA[5]	I/O	SDRAM-DEC, Bidirectional buffer
362	J5	DVDADT[4]	O	DVD-AUDIO, Output buffer	417	R1	DDATA[7]	I/O	SDRAM-DEC, Bidirectional buffer
363	H4	DVDADT[3]	O	DVD-AUDIO, Output buffer	418	R2	DDQM[0]	O	SDRAM-DEC, Output buffer
364	G1	DVDADT[2]	O	DVD-AUDIO, Output buffer	419	VDD3	VDD3	–	3.3V I/O power supply
365	H3	DVDADT[1]	O	DVD-AUDIO, Output buffer	420	R3	DWE	O	SDRAM-DEC, Output buffer
366	H2	DVDADT[0]	O	DVD-AUDIO, Output buffer	421	VDD	VDD	–	1.2V LOGIC power supply
367	H1	DVDAADR[1]	O	DVD-AUDIO, Output buffer	422	R4	DDQM[1]	O	SDRAM-DEC, Output buffer
368	K5	DVDAADR[0]	O	DVD-AUDIO, Output buffer	423	GND	GND	–	Ground
369	J4	DVDAREQ	I/O	DVD-AUDIO, Bidirectional buffer	424	R5	DCLKO	O	SDRAM-DEC, Output buffer
370	GND	GND	–	Ground	425	VDD3	VDD3	–	3.3V I/O power supply
371	J3	DVDAACK	O	DVD-AUDIO, Output buffer	426	VDD	VDD	–	1.2V LOGIC power supply
372	VDD	VDD	–	1.2V LOGIC power supply	427	T1	DCAS	O	SDRAM-DEC, Output buffer
373	J2	SCICS[1]	I/O	HOST, Bidirectional buffer	428	GND	GND	–	Ground
374	VDD3	VDD3	–	3.3V I/O power supply	429	T2	DRAS	–	SDRAM-DEC, Output buffer
375	J1	SCICS[0]	I/O	HOST, Bidirectional buffer	430	GND	GND	–	Ground
376	VDD	VDD	–	1.2V LOGIC power supply	431	T3	DCS	O	SDRAM-DEC, Output buffer
377	K4	SCIDATA[1]	I/O	HOST, Bidirectional buffer	432	T4	DADRS[11]	O	SDRAM-DEC, Output buffer
378	GND	GND	–	Ground	433	U1	DBS[0]	O	SDRAM-DEC, Output buffer
379	L5	SCIDATA[0]	I/O	HOST, Bidirectional buffer	434	VDD3	VDD3	–	3.3V I/O power supply
380	K3	VDD	–	1.2V LOGIC power supply	435	T5	DADRS[9]	O	SDRAM-DEC, Output buffer
381	K2	SCICLK[1]	I/O	HOST, Bidirectional buffer	436	U2	DBS[1]	O	SDRAM-DEC, Output buffer
382	GND	GND	–	Ground	437	U3	DADRS[10]	O	SDRAM-DEC, Output buffer
383	K1	SCICLK[0]	I/O	HOST, Bidirectional buffer	438	VDD	VDD	–	1.2V LOGIC power supply
384	GND	GND	–	Ground	439	U4	DADRS[7]	O	SDRAM-DEC, Output buffer
385	L4	SPICS	I/O	HOST, Bidirectional buffer	440	GND	GND	–	Ground

No.	BALL Address	Pin Name	I/O	Function	No.	BALL Address	Pin Name	I/O	Function
441	V1	DADRS[0]	O	SDRAM-DEC, Output buffer	496	VDD	VDD	–	1.2V LOGIC power supply
442	GND	GND	–	Ground	497	AD4	HDACK[0]	O	Output buffer, 4mA
443	V2	DADRS[1]	O	SDRAM-DEC, Output buffer	498	AF1	HDREQ[1]	I	HOST, Input buffer
444	VDD	VDD	–	1.2V LOGIC power supply	499	AE3	HDREQ[0]	I	HOST, Input buffer
445	U5	DADRS[8]	O	SDRAM-DEC, Output buffer	500	AC5	HWAIT	I	HOST, Input buffer
446	GND	GND	–	Ground	501	AF2	HOE	O	HOST, Output buffer
447	V3	DADRS[5]	O	SDRAM-DEC, Output buffer	502	VDD3	VDD3	–	3.3V I/O power supply
448	VDD3	VDD3	–	3.3V I/O power supply	503	GND	GND	–	Ground
449	V4	DADRS[6]	O	SDRAM-DEC, Output buffer	504	AE4	VDD	–	1.2V LOGIC power supply
450	W1	DADRS[3]	O	SDRAM-DEC, Output buffer	505	AD5	HCS[5]	O	HOST, Output buffer
451	W2	DADRS[2]	O	SDRAM-DEC, Output buffer	506	AG2	HCS[4]	O	HOST, Output buffer
452	VDD	VDD	–	1.2V LOGIC power supply	507	AF3	HCS[3]	O	HOST, Output buffer
453	W3	DADRS[4]	O	SDRAM-DEC, Output buffer	508	AG3	HCS[2]	O	HOST, Output buffer
454	GND	GND	–	Ground	509	AH2	HCS[1]	O	HOST, Output buffer
455	GND	GND	–	Ground	510	GND	GND	–	Ground
456	GND	GND	–	Ground	511	AF4	HCS[0]	O	HOST, Output buffer
457	V5	INT[7]	I/O	HOST, Bidirectional buffer	512	VDD	VDD	–	1.2V LOGIC power supply
458	VDD	VDD	–	1.2V LOGIC power supply	513	AD6	HADRS[10]	I/O	HOST, Bidirectional buffer
459	W4	INT[6]	I/O	HOST, Bidirectional buffer	514	GND	GND	–	Ground
460	Y1	INT[5]	I/O	HOST, Bidirectional buffer	515	AE5	HADRS[11]	I/O	HOST, Bidirectional buffer
461	Y2	INT[4]	I/O	HOST, Bidirectional buffer	516	AG4	HADRS[13]	I/O	HOST, Bidirectional buffer
462	VDD3	VDD3	–	3.3V I/O power supply	517	AH3	HADRS[30]	I/O	HOST, Bidirectional buffer
463	Y3	INT[3]	I/O	HOST, Bidirectional buffer	518	VDD3	VDD3	–	3.3V I/O power supply
464	GND	GND	–	Ground	519	AF5	HADRS[12]	I/O	HOST, Bidirectional buffer
465	Y4	INT[2]	I/O	HOST, Bidirectional buffer	520	GND	GND	–	Ground
466	VDD	VDD	–	1.2V LOGIC power supply	521	AH4	HADRS[14]	I/O	HOST, Bidirectional buffer
467	W5	INT[1]	I/O	HOST, Bidirectional buffer	522	AE6	HDATA[1]	I/O	HOST, Bidirectional buffer
468	AA1	INT[0]	I/O	HOST, Bidirectional buffer	523	AD7	HADRS[9]	I/O	HOST, Bidirectional buffer
469	AA2	SCLK[1]	I/O	HOST, Bidirectional buffer	524	VDD3	VDD3	–	3.3V I/O power supply
470	AA3	SCLK[0]	I/O	HOST, Bidirectional buffer	525	AG5	HDATA[15]	I/O	HOST, Bidirectional buffer
471	AB1	CTS[3]	I/O	HOST, Bidirectional buffer	526	GND	GND	–	Ground
472	GND	GND	–	Ground	527	AH5	HDATA[14]	I/O	HOST, Bidirectional buffer
473	Y5	CTS[2]	I/O	HOST, Bidirectional buffer	528	GND	GND	–	Ground
474	GND	GND	–	Ground	529	AF6	HDATA[0]	I/O	HOST, Bidirectional buffer
475	AA4	CTS[1]	I/O	HOST, Bidirectional buffer	530	AD8	HDATA[6]	I/O	HOST, Bidirectional buffer
476	VDD	VDD	–	1.2V LOGIC power supply	531	AE7	HDATA[2]	I/O	HOST, Bidirectional buffer
477	AB3	CTS[0]	I/O	HOST, Bidirectional buffer	532	VDD3	VDD3	–	3.3V I/O power supply
478	AB2	RTS[3]	I/O	HOST, Bidirectional buffer	533	AG6	HDATA[12]	I/O	HOST, Bidirectional buffer
479	AC2	RTS[2]	I/O	HOST, Bidirectional buffer	534	VDD	VDD	–	1.2V LOGIC power supply
480	AC1	RTS[1]	I/O	HOST, Bidirectional buffer	535	AH6	HDATA[13]	I/O	HOST, Bidirectional buffer
481	AA5	RTS[0]	I/O	HOST, Bidirectional buffer	536	AG7	HDATA[11]	I/O	HOST, Bidirectional buffer
482	VDD3	VDD3	–	3.3V I/O power supply	537	AF7	HDATA[3]	I/O	HOST, Bidirectional buffer
483	AB4	RX[3]	I/O	HOST, Bidirectional buffer	538	GND	GND	–	Ground
484	GND	GND	–	Ground	539	AE8	HDATA[5]	I/O	HOST, Bidirectional buffer
485	AC3	RX[2]	I/O	HOST, Bidirectional buffer	540	GND	GND	–	Ground
486	VDD	VDD	–	1.2V LOGIC power supply	541	AD9	HDATA[7]	I/O	HOST, Bidirectional buffer
487	AD2	RX[1]	I/O	HOST, Bidirectional buffer	542	AF8	HDATA[4]	I/O	HOST, Bidirectional buffer
488	AD1	RX[0]	I/O	HOST, Bidirectional buffer	543	AH7	HDATA[10]	I/O	HOST, Bidirectional buffer
489	AB5	TX[3]	I/O	HOST, Bidirectional buffer	544	VDD3	VDD3	–	3.3V I/O power supply
490	AC4	TX[2]	I/O	HOST, Bidirectional buffer	545	AG8	HDATA[8]	I/O	HOST, Bidirectional buffer
491	AD3	TX[1]	I/O	HOST, Bidirectional buffer	546	VDD	VDD	–	1.2V LOGIC power supply
492	GND	GND	–	Ground	547	AH8	HDATA[9]	I/O	HOST, Bidirectional buffer
493	AE1	TX[0]	I/O	HOST, Bidirectional buffer	548	AE9	HDWE	O	HOST, Output buffer
494	GND	GND	–	Ground	549	AF9	DQMWS[0]	O	HOST, Output buffer
495	AE2	HDACK[1]	O	HOST, Output buffer	550	GND	GND	–	Ground

No.	BALL Address	Pin Name	I/O	Function	No.	BALL Address	Pin Name	I/O	Function
551	AD10	HDCS[1]	O	HOST, Output buffer	606	AG16	TMS	I	TEST, nput buffer
552	GND	GND	–	Ground	607	GND	GND	–	Ground
553	AG9	DQMWS[1]	O	HOST, Output buffer	608	AF16	TDO	O	TEST, Output buffer
554	VDD3	VDD3	–	3.3V I/O power supply	609	VDD	VDD	–	1.2V LOGIC power supply
555	AH9	HCLKO	O	HOST, Output buffer	610	AE16	TDI	I	TEST, Input buffer
556	GND	GND	–	Ground	611	VDD3	VDD3	–	3.3V I/O power supply
557	AE10	HDCS[0]	O	HOST, Output buffer	612	AH17	TRST	I	TEST, Input buffer
558	VDD3	VDD3	–	3.3V I/O power supply	613	GND	GND	–	Ground
559	AD11	HADRS[15]	I/O	HOST, Bidirectional buffer	614	AD16	TCK	I	TEST, Input buffer
560	VDD	VDD	–	1.2V LOGIC power supply	615	VDD3	VDD3	–	3.3V I/O power supply
561	AF10	HCAS	O	HOST, Output buffer	616	AG17	PLLRST	I	CLOCK, Input buffer
562	AG10	HRAS	O	HOST, Output buffer	617	GND	GND	–	Ground
563	AH10	HCLKEN	O	HOST, Output buffer	618	AF17	DVVCLKO	O	CLOCK, Output buffer
564	GND	GND	–	Groud	619	VDD3	VDD3	–	3.3V I/O power supply
565	AE11	HADRS[16]	I/O	HOST, Bidirectional buffer	620	AE17	PXCLK	O	CLOCK, Output buffer
566	GND	GND	–	Ground	621	GND	GND	–	Ground
567	AF11	HADRS[17]	I/O	HOST, Bidirectional buffer	622	AH18	REC656I[7]	I	VIDEO-Digital, Input buffer
568	AD12	HADRS[27]	I/O	HOST, Bidirectional buffer	623	VDD	VDD	–	1.2V LOGIC power supply
569	AG11	HADRS[20]	I/O	HOST, Bidirectional buffer	624	AG18	REC656I[6]	I	VIDEO-Digital, Input buffer
570	VDD3	VDD3	–	3.3V I/O power supply	625	GND	GND	–	Ground
571	AH11	HADRS[21]	I/O	HOST, Bidirectional buffer	626	AD17	REC656I[5]	I	VIDEO-Digital, Input buffer
572	VDD	VDD	–	1.2V LOGIC power supply	627	AF18	REC656I[4]	I	VIDEO-Digital, Input buffer
573	AE12	HADRS[19]	I/O	HOST, Bidirectional buffer	628	AE18	REC656I[3]	I	VIDEO-Digital, Input buffer
574	AF12	HADRS[18]	I/O	HOST, Bidirectional buffer	629	AH19	REC656I[2]	I	VIDEO-Digital, Input buffer
575	AG12	HADRS[23]	I/O	HOST, Bidirectional buffer	630	AG19	REC656I[1]	I	VIDEO-Digital, Input buffer
576	GND	GND	–	Ground	631	AF19	REC656I[0]	I	VIDEO-Digital, Input buffer
577	AD13	HADRS[28]	I/O	HOST, Bidirectional buffer	632	AH20	DVVIDEO[7]	I/O	VIDEO-Digital, Bidirectional buffer
578	VDD	VDD	–	1.2V LOGIC power supply	633	AD18	DVVIDEO[6]	I/O	VIDEO-Digital, Bidirectional buffer
579	AH12	HADRS[22]	I/O	HOST, Bidirectional buffer	634	AE19	DVVIDEO[5]	I/O	VIDEO-Digital, Bidirectional buffer
580	GND	GND	–	Ground	635	VDD3	VDD3	–	3.3V I/O power supply
581	AE13	HADRS[29]	I/O	HOST, Bidirectional buffer	636	AG20	DVVCLKI	I	CLOCK, Input buffer
582	VDD	VDD	–	1.2V LOGIC power supply	637	AF20	PLL2AVDD	–	
583	AF13	HADRS[24]	I/O	HOST, Bidirectional buffer	638	AH21	PLL2AVSS	–	
584	VDD3	VDD3	–	3.3V I/O power supply	639	AD19	R656CLKI	I	CLOCK, Input buffer
585	AG13	HADRS[25]	I/O	HOST, Bidirectional buffer	640	GND	GND	–	Ground
586	GND	GND	–	Ground	641	AE20	ADMCLKI	I	CLOCKI, Input buffer
587	AH13	HADRS[26]	I/O	HOST, Bidirectional buffer	642	VDD3	VDD3	–	3.3V I/O power supply
588	GND	GND	–	Ground	643	AG21	DVVIDEO[4]	I/O	VIDEO-Digital, Bidirectional buffer
589	GND	GND	–	Ground	644	AF21	DVVIDEO[3]	I/O	VIDEO-Digital, Bidirectional buffer
590	AD14	TESTMOD[6]	I	TEST, Input buffer	645	AD20	DVVIDEO[2]	I/O	VIDEO-Digital, Bidirectional buffer
591	AE14	VDD	–	1.2V LOGIC power supply	646	AH22	DVVIDEO[1]	I/O	VIDEO-Digital, Bidirectional buffer
592	AF14	TESTMOD[5]	I	TEST, Input buffer	647	AG22	DVVIDEO[0]	I/O	VIDEO-Digital, Bidirectional buffer
593	GND	GND	–	Ground	648	AE21	REC656O[7]	O	VIDEO-Digital, Output buffer
594	AG14	TESTMOD[4]	I	TEST, Input buffer	649	AF22	REC656O[6]	O	VIDEO-Digital, Output buffer
595	VDD	VDD	–	1.2V LOGIC power supply	650	VDD	VDD	–	1.2V LOGIC power supply
596	AH14	TESTMOD[3]	I	TEST, Input buffer	651	AH23	DVREQ	I	VIDEO-Digital, Input buffer
597	GND	GND	–	Ground	652	GND	GND	–	Ground
598	AH15	TESTMOD[2]	I	TEST, Input buffer	653	AG23	DVACK	O	VIDEO-Digital, Output buffer
599	VDD	VDD	–	1.2V LOGIC power supply	654	GND	GND	–	Ground
600	AG15	TESTMOD[1]	I	TEST, Input buffer	655	AE22	AVSS1DA10	–	
601	GND	GND	–	Ground	656	AD21	GOUT	O	VIDEO-Analog
602	AF15	TESTMOD[0]	I	TEST, Input buffer	657	AH24	AVDD1DA10	–	
603	AE15	CSYNC	I	CLOCK, Input buffer	658	AF23	BOUT	O	VIDEO-Analog
604	AD15	VIPWM	O	CLOCK, Output buffer	659	AE23	AVDD1DA10	–	
605	AH16	PLLON	I	TEST, Input buffer	660	AG24	ROUT	O	VIDEO-Analog

No.	BALL Address	Pin Name	I/O	Function	No.	BALL Address	Pin Name	I/O	Function
661	AD22	IREF[0]	–	VIDEO-Analog	669	AD23	REC656O[4]	O	VIDEO-Digital, Output buffer
662	AF24	IREF[1]	–	VIDEO-Analog	670	AH27	REC656O[3]	O	VIDEO-Digital, Output buffer
663	AG25	YOUT	O	VIDEO-Analog	671	AG26	REC656O[2]	O	VIDEO-Digital, Output buffer
664	AH25	AVSS2DA10	–		672	AG27	REC656O[1]	O	VIDEO-Digital, Output buffer
665	AE24	COUT	O	VIDEO-Analog	673	GND	GND	–	Ground
666	AH26	AVDD2DA10	–		674	AD24	REC656O[0]	O	VIDEO-Digital, Output buffer
667	GND	GND	–	Ground	675	AE25	AGCCTL	O	VIDEO-Analog
668	AF25	REC656O[5]	O	VIDEO-Digital, Output buffer					

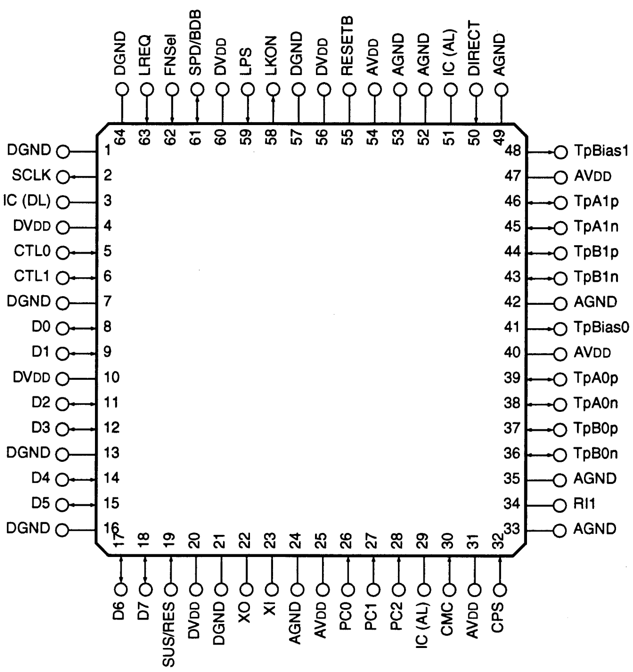
● Others

BALL Address	Pin Name	BALL Address	Pin Name	BALL Address	Pin Name	BALL Address	Pin Name
AA23	GND	P12	GND	AC11	VDD	AB23	VDD3
AA6	GND	P13	GND	AC14	VDD	AB6	VDD3
AC12	GND	P14	GND	AC6	VDD	AC10	VDD3
AC17	GND	P15	GND	AC8	VDD	AC13	VDD3
AC20	GND	P16	GND	L6	VDD	AC16	VDD3
AC9	GND	P17	GND	AC11	VDD	AC19	VDD3
F11	GND	R12	GND	AC14	VDD	AC22	VDD3
F14	GND	R13	GND	AC6	VDD	AC7	VDD3
F17	GND	R14	GND	AC8	VDD	F10	VDD3
F20	GND	R15	GND	L6	VDD	F13	VDD3
F23	GND	R16	GND	P6	VDD	F16	VDD3
F8	GND	R17	GND	U6	VDD	F19	VDD3
H6	GND	R23	GND	Y6	VDD	F22	VDD3
J23	GND	R6	GND	F12	VDD	F7	VDD3
M12	GND	T12	GND	F6	VDD	G23	VDD3
M13	GND	T13	GND	F9	VDD	G6	VDD3
M14	GND	T14	GND	J6	VDD	K23	VDD3
M15	GND	T15	GND	AC15	VDD	K6	VDD3
M16	GND	T16	GND	AC18	VDD	N23	VDD3
M17	GND	T17	GND	AC21	VDD	N6	VDD3
M23	GND	U12	GND	AC23	VDD	T23	VDD3
M6	GND	U13	GND	F15	VDD	T6	VDD3
N12	GND	U14	GND	F18	VDD	W23	VDD3
N13	GND	U15	GND	F21	VDD	W6	VDD3
N14	GND	U16	GND	H23	VDD		
N15	GND	U17	GND	L23	VDD		
N16	GND	V23	GND	P23	VDD		
N17	GND	V6	GND	U23	VDD		
				Y23	VDD		

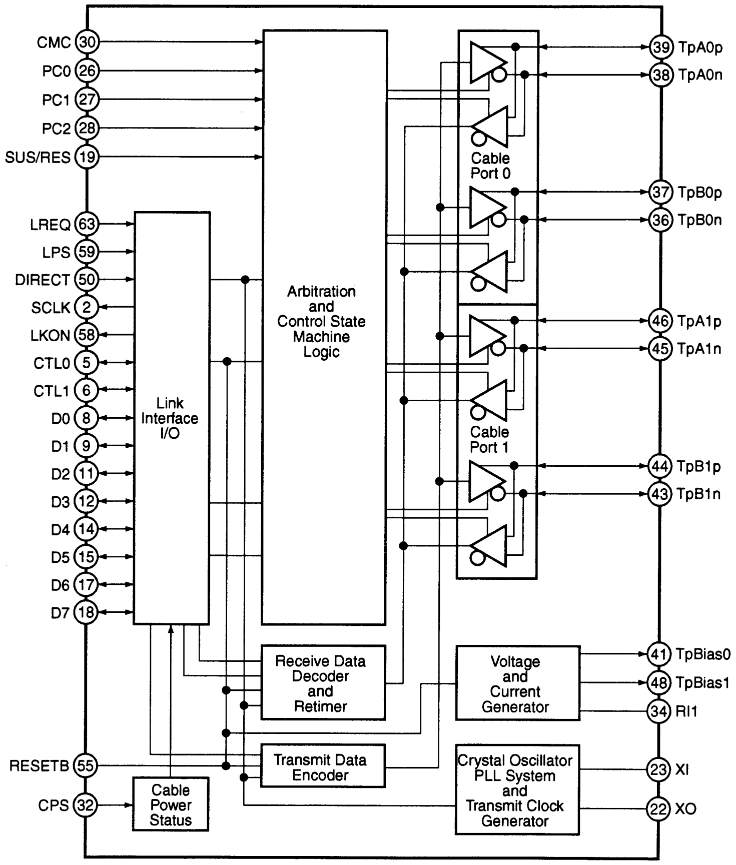
UPD72852AGB-8EU (MAIN ASSY : IC5101)

- IEEE1394 Physical IC

● Pin Arrangement


1 DGND
2 SCLK
3 IC (DL)
4 DVDD
5 CTL0
6 CTL1
7 DGND
8 D0
9 D1
10 DVDD
11 D2
12 D3
13 DGND
14 D4
15 D5
16 DGND
17 D6
18 D7
19 SUS/RES
20 DVDD
21 DGND
22 XO
23 XI
24 AGND
25 AVDD
26 PC0
27 PC1
28 PC2
29 IC (AL)
30 CMC
31 AVDD
32 CPS
33 AGND
34 RI1
35 AGND
36 TpB0n
37 TpB0p
38 TpA0n
39 TpA0p
40 AVDD
41 TpBias0
42 AGND
43 TpB1n
44 TpB1p
45 TpA1n
46 TpA1p
47 AVDD
48 TpBias1
49 AGND
50 DIRECT
51 IC (AL)
52 AGND
53 AGND
54 AVDD
55 RESETB
56 DVDD
57 DGND
58 LKON
59 LPS
60 DVDD
61 SPD/BDB
62 FNSel
63 LREQ
64 DGND

● Block Diagram


CMC 30
PC0 26
PC1 27
PC2 28
SUS/RES 19
LREQ 63
LPS 59
DIRECT 50
SCLK 2
LKON 58
CTL0 5
CTL1 6
D0 8
D1 9
D2 11
D3 12
D4 14
D5 15
D6 17
D7 18
RESETB 55
CPS 32
Link Interface I/O
Arbitration and Control State Machine Logic
Cable Port 0
Cable Port 1
Receive Data Decoder and Retimer
Transmit Data Encoder
Cable Power Status
Voltage and Current Generator
Crystal Oscillator PLL System and Transmit Clock Generator
39 TpA0p
38 TpA0n
37 TpB0p
36 TpB0n
46 TpA1p
45 TpA1n
44 TpB1p
43 TpB1n
41 TpBias0
48 TpBias1
34 RI1
23 XI
22 XO

● Pin Function

• Cable Interface Pins

No.	Pin Name	I/O	Function
39	TpA0p	I/O	Port 0 twisted pair cable A positive phase I/O
38	TpA0n	I/O	Port 0 twisted pair cable A negative phase I/O
37	TpB0p	I/O	Port 0 twisted pair cable B positive phase I/O
36	TpB0n	I/O	Port 0 twisted pair cable B negative phase I/O
46	TpA1p	I/O	Port 1 twisted pair cable A positive phase I/O
45	TpA1n	I/O	Port 1 twisted pair cable A negative phase I/O
44	TpB1p	I/O	Port 1 twisted pair cable B positive phase I/O
43	TpB1n	I/O	Port 1 twisted pair cable B negative phase I/O
19	SUS/RES	I	Suspend/Resume function select 1 : Suspend/Resume on (IEEE1394a-2000 compliant) 0 : Suspend/Resume off (P1394a draft 1.3 compliant)
32	CPS	I	Cable power status Connect to the cable through a 390 kΩ resistor and to the GND through a 100 kΩ resistor. 0 : Cable power fail 1 : Cable power on

• Link Interface Pins

No.	Pin Name	I/O	Function
8	D0	I/O	Data input/output (bit 0)
9	D1	I/O	Data input/output (bit 1)
11	D2	I/O	Data input/output (bit 2)
12	D3	I/O	Data input/output (bit 3)
14	D4	I/O	Data input/output (bit 4)
15	D5	I/O	Data input/output (bit 5)
17	D6	I/O	Data input/output (bit 6)
18	D7	I/O	Data input/output (bit 7)
5	CTL0	I/O	Link interface control (bit 0)
6	CTL1	I/O	Link interface control (bit 1)
63	LREQ	I	Link request input
2	SCLK	O	Link control output clock LPS 1 : 49.152 MHz output LPS 0 : Clamp to 0 (The clock signal will be output within 25 µsec after change to "0")
59	LPS	I	Link power status input 0 : Link power off 1 : Link power on (PHY/Link direct connection)
58	LKON	O	Link-on signal output Link-on signal is 6.1444 MHz clock output.
50	DIRECT	I	PHY/Link isolation barrier control input 0 : Isolation barrier 1 : PHY/Link direct connection

• Control Pins

No.	Pin Name	I/O	Function
26	PC0	I	Power class set input This pin status will be loaded to Pwr_class bit which allocated to PHY register 4H. IEEE1394a-2000 chapter [4.3.4.1]
27	PC1	I	
28	PC2	I	
30	CMC	I	Configuration manager capable setting This pin status will be loaded to Contender bit which allocated to PHY register 4H. 0 : Non contender 1 : Contender
55	RESETB	I	Power on reset input Connect to GND through a 0.1 µF capacitor. 0 : Reset 1 : Normal
61	SPD/BDB	I FNSel = 0	Speed select (UPD72852GB) 0 : MAX. S200 1 : MAX. S400
		O FNSel = 1	BIAS Detected output (Logical Inverse) 0 : BIAS is coming from some port. 1 : BIAS is not coming from any port.

• IC

No.	Pin Name	I/O	Function
29, 51	IC (AL)	–	Internally Connected (Low Clamped) Connected to GND.
3	IC (DL)	–	Internally Connected (Low Clamped) Connected to GND.

• Power Supply Pins

No.	Pin Name	I/O	Function
25, 31, 40, 47, 54	AVDD	–	Analog power
24, 33, 35, 42, 49, 52, 53	AGND	–	Analog GND
4, 10, 20, 56, 60	DVDD	–	Digital VDD
1, 7, 13, 16, 21, 57, 64	DGND	–	Digital GND

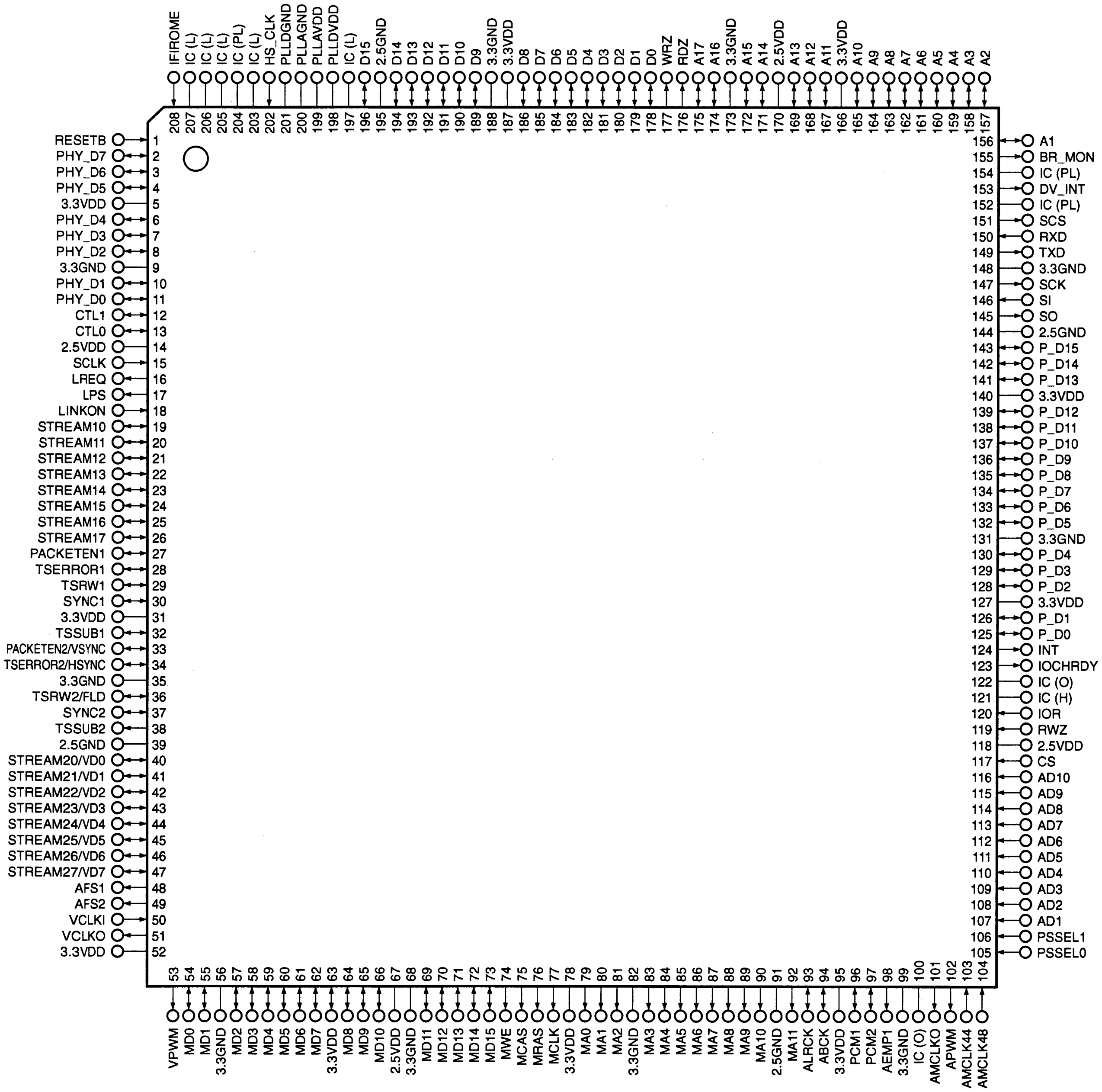
• Other Pins

No.	Pin Name	I/O	Function
41	TpBias0	O	Port 0 twisted pair output
48	TpBias1	O	Port 1 twisted pair output
34	RI1	–	Resistor connection pin 1 for reference current generator Please connect to GND pin through the 9.1 kΩ resistor.
23	XI	–	Crystal oscillator connection XI
22	XO	–	Crystal oscillator connection XO
62	FNSel	I	Function Select 0 : #61 acts as SPD (UPD72852GB compliant) 1 : #61 acts as BDB

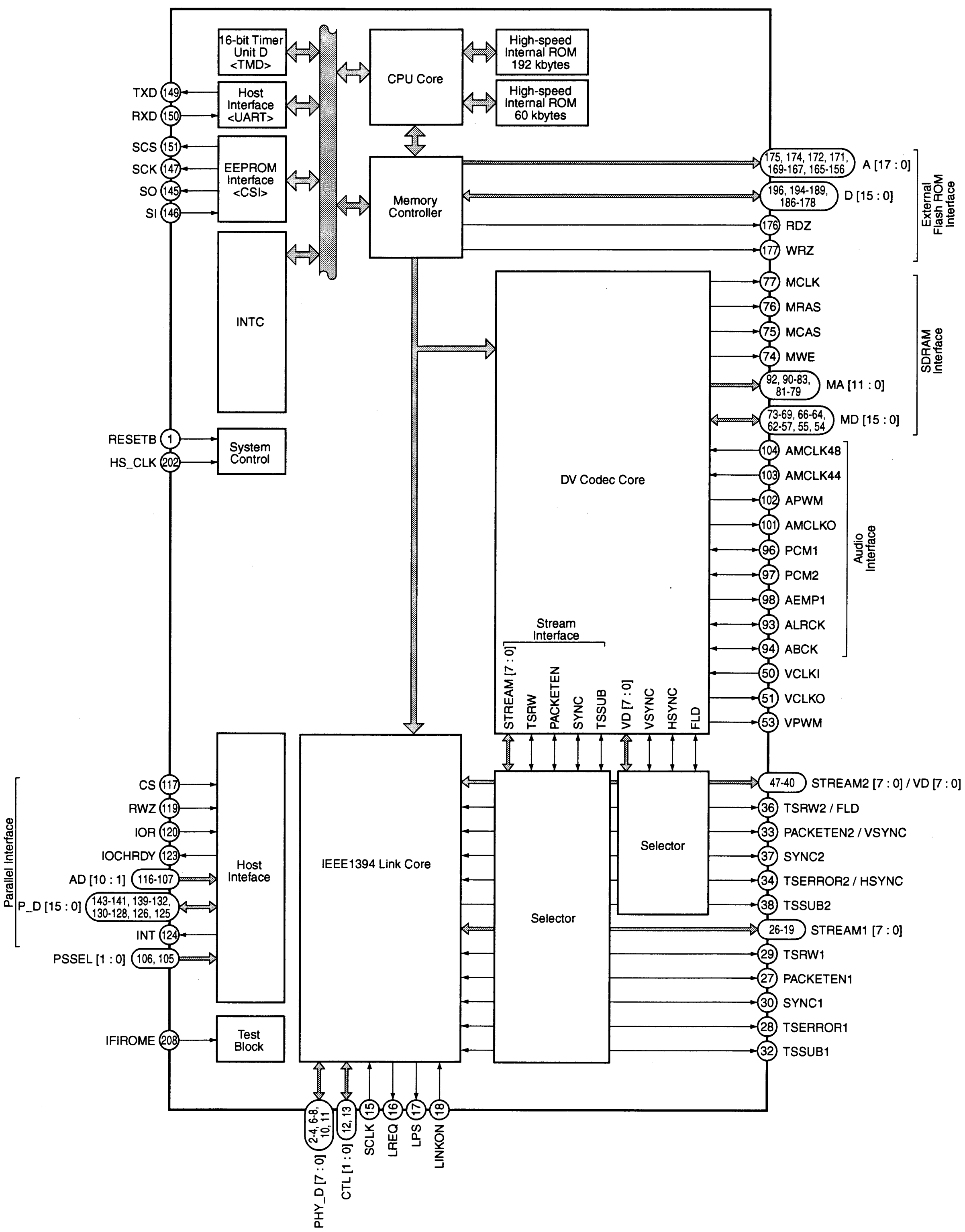
■ UPD72893BGD-LML (MAIN ASSY : IC5202)

- IEEE1394 Link IC

● Pin Arrangement


1 RESETB
2 PHY_D7
3 PHY_D6
4 PHY_D5
5 3.3VDD
6 PHY_D4
7 PHY_D3
8 PHY_D2
9 3.3GND
10 PHY_D1
11 PHY_D0
12 CTL1
13 CTL0
14 2.5VDD
15 SCLK
16 LREQ
17 LPS
18 LINKON
19 STREAM10
20 STREAM11
21 STREAM12
22 STREAM13
23 STREAM14
24 STREAM15
25 STREAM16
26 STREAM17
27 PACKETEN1
28 TSERROR1
29 TSRW1
30 SYNC1
31 3.3VDD
32 TSSUB1
33 PACKETEN2/VSYNC
34 TSERROR2/HSYNC
35 3.3GND
36 TSRW2/FLD
37 SYNC2
38 TSSUB2
39 2.5GND
40 STREAM20/VD0
41 STREAM21/VD1
42 STREAM22/VD2
43 STREAM23/VD3
44 STREAM24/VD4
45 STREAM25/VD5
46 STREAM26/VD6
47 STREAM27/VD7
48 AFS1
49 AFS2
50 VCLKI
51 VCLKO
52 3.3VDD
53 VPWM
54 MD0
55 MD1
56 3.3GND
57 MD2
58 MD3
59 MD4
60 MD5
61 MD6
62 MD7
63 3.3VDD
64 MD8
65 MD9
66 MD10
67 2.5VDD
68 3.3GND
69 MD11
70 MD12
71 MD13
72 MD14
73 MD15
74 MWE
75 MCAS
76 MRAS
77 MCLK
78 3.3VDD
79 MA0
80 MA1
81 MA2
82 3.3GND
83 MA3
84 MA4
85 MA5
86 MA6
87 MA7
88 MA8
89 MA9
90 MA10
91 2.5GND
92 MA11
93 ALRCK
94 ABCK
95 3.3VDD
96 PCM1
97 PCM2
98 AEMP1
99 3.3GND
100 IC (O)
101 AMCLKO
102 APWM
103 AMCLK44
104 AMCLK48
105 PSSEL0
106 PSSEL1
107 AD1
108 AD2
109 AD3
110 AD4
111 AD5
112 AD6
113 AD7
114 AD8
115 AD9
116 AD10
117 CS
118 2.5VDD
119 RWZ
120 IOR
121 IC (H)
122 IC (O)
123 IOCHRDY
124 INT
125 P_D0
126 P_D1
127 3.3VDD
128 P_D2
129 P_D3
130 P_D4
131 3.3GND
132 P_D5
133 P_D6
134 P_D7
135 P_D8
136 P_D9
137 P_D10
138 P_D11
139 P_D12
140 3.3VDD
141 P_D13
142 P_D14
143 P_D15
144 2.5GND
145 SO
146 SI
147 SCK
148 3.3GND
149 TXD
150 RXD
151 SCS
152 IC (PL)
153 DV_INT
154 IC (PL)
155 BR_MON
156 A1
157 A2
158 A3
159 A4
160 A5
161 A6
162 A7
163 A8
164 A9
165 A10
166 3.3VDD
167 A11
168 A12
169 A13
170 2.5VDD
171 A14
172 A15
173 3.3GND
174 A16
175 A17
176 RDZ
177 WRZ
178 D0
179 D1
180 D2
181 D3
182 D4
183 D5
184 D6
185 D7
186 D8
187 3.3VDD
188 3.3GND
189 D9
190 D10
191 D11
192 D12
193 D13
194 D14
195 2.5GND
196 D15
197 IC (L)
198 PLLDVDD
199 PLLAVDD
200 PLLAGND
201 PLLDGND
202 HS_CLK
203 IC (L)
204 IC (PL)
205 IC (L)
206 IC (L)
207 IC (L)
208 IFIROME

● Block Diagram


16-bit Timer Unit D <TMD>
Host Interface <UART>
EEPROM Interface <CSI>
INTC
System Control
CPU Core
High-speed Internal ROM 192 kbytes
High-speed Internal ROM 60 kbytes
Memory Controller
DV Codec Core
Stream Interface
STREAM [7 : 0]
TSRW
PACKETEN
SYNC
TSSUB
VD [7 : 0]
VSYNC
HSYNC
FLD
Host Inteface
IEEE1394 Link Core
Selector
Selector
Test Block
TXD 149
RXD 150
SCS 151
SCK 147
SO 145
SI 146
RESETB 1
HS_CLK 202
175, 174, 172, 171, 169-167, 165-156 A [17 : 0]
196, 194-189, 186-178 D [15 : 0]
176 RDZ
177 WRZ
External Flash ROM Interface
77 MCLK
76 MRAS
75 MCAS
74 MWE
92, 90-83, 81-79 MA [11 : 0]
73-69, 66-64, 62-57, 55, 54 MD [15 : 0]
SDRAM Interface
104 AMCLK48
103 AMCLK44
102 APWM
101 AMCLKO
96 PCM1
97 PCM2
98 AEMP1
93 ALRCK
94 ABCK
Audio Interface
50 VCLKI
51 VCLKO
53 VPWM
47-40 STREAM2 [7 : 0] / VD [7 : 0]
36 TSRW2 / FLD
33 PACKETEN2 / VSYNC
37 SYNC2
34 TSERROR2 / HSYNC
38 TSSUB2
26-19 STREAM1 [7 : 0]
29 TSRW1
27 PACKETEN1
30 SYNC1
28 TSERROR1
32 TSSUB1
Parallel Interface
CS 117
RWZ 119
IOR 120
IOCHRDY 123
AD [10 : 1] 116-107
P_D [15 : 0] 143-141, 139-132, 130-128, 126, 125
INT 124
PSSEL [1 : 0] 106, 105
IFIROME 208
2-4, 6-8, 10, 11 PHY_D [7 : 0]
12, 13 CTL [1 : 0]
15 SCLK
16 LREQ
17 LPS
18 LINKON

● Pin Function

(1) Link relation

No.	Pin Name	I/O	Function	Active
18	LINKON	I	Link-on signal input Clock input When LPS is active, input 0.	–
17	LPS	O	Link power status output Link power OFF : 0 Link power ON : 2.7 MHz pulse output (20 dividing of host clock 54 MHz)	–
16	LREQ	O	Link request output	–
15	SCLK	I	Clock input for Link control LPS is active : 49.152 MHz input LPS = 0 0 : fixed	–
12, 13	CTL [1 : 0]	I/O	PHY/Link control signal input/output	–
2-4, 6-8, 10,11	PHY_D [7 : 0]	I/O	Data input/output between PHY-Link	–
26-19	STREAM1 [7 : 0]	I/O	ISO data bus of stream interface 1	–
27	PACKETEN1	I/O	Packet enable signal input/output of stream interface 1	H/L
28	TSERROR1	I/O	Packet error signal input/output of stream interface 1	H/L
29	TSRW1	I/O	Data read/write enable signal input/output of stream interface 1	–
30	SYNC1	I/O	Frame synchronous signal input/output of stream interface 1	H/L
32	TSSUB1	I/O	Not used Connect to VDD or GND through a resistor.	H/L
47-40	STREAM2 [7 : 0]	I/O	ISO data bus of stream interface 2	–
33	PACKETEN2	I/O	Packet enable signal input/output of stream interface 2	H/L
34	TSERROR2	I/O	Packet error signal input/output of stream interface 2	H/L
36	TSRW2	I/O	Data read/write enable signal input/output of stream interface 2	–
37	SYNC2	I/O	Frame synchronous signal input/output of stream interface 2	H/L
38	TSSUB2	O	Not used Set to open.	–

(2) Video interface pins

No.	Pin Name	I/O	Function	Active
50	VCLKI	I	Video clock input (27 MHz)	–
51	VCLKO	O	Video clock output (27 MHz)	–
47-40	VD [7 : 0]	I/O	Video data signal	–
33	VSYNC	I/O	Video vertical sync. signal	L
34	HSYNC	I/O	Video horizontal sync. signal	L
36	FLD	I/O	Field index signal	–
53	VPWM	O	PWM signal for video PLL	–

(3) Audio interface pins

No.	Pin Name	I/O	Function	Active
104	AMCLK48	I	Audio master clock input for sampling frequency 48 kHz	–
103	AMCLK44	I	Audio master clock input for sampling frequency 44 kHz	–
101	AMCLKO	O	Audio master clock output	–
96	PCM1	I/O	Audio PCM serial data At 2ch : System 1 (data of audio block 1) At 4ch : System 1 The above is default setting value. Input/output data of PCM 1 and PCM 2 is replaced by Channel swap setting of an AUDIO_FUNC register.	–
97	PCM2	I/O	Audio PCM serial data At 2ch : Mute At 4ch : System 2 (data of audio block 2) The above is default setting value. Input/output data of PCM 1 and PCM 2 is replaced by Channel swap setting of an AUDIO_FUNC register. Note: Cannot use it in DV decode.	–
98	AEMP1	O	PCM1 emphasis ON/OFF in PCM 1 output	H
93	ALRCK	I/O	Audio LR clock L ch : High R ch : Low	–
94	ABCK	I/O	Audio bit clock	–
49, 48	AFS [2 : 1]	O	Audio sampling frequency AFS2 AFS1 44.1 kHz 0 1 48 kHz 0 0 32 kHz 1 0	–
102	APWM	O	PWM signal for audio PLL	–

(4) SDRAM interface pins

No.	Pin Name	I/O	Function	Active
77	MCLK	O	CLK pin connection of SDRAM	–
76	MRAS	O	RAS pin connection of SDRAM	–
75	MCAS	O	CAS pin connection of SDRAM	–
74	MWE	O	WE pin connection of SDRAM	–
92, 90-83, 81-79	MA [11 : 0]	O	Address pin connection of SDRAM	–
73-69, 66-64, 62-57, 55, 54	MD [15 : 0]	I/O	Data pin connection of SDRAM Note: Process of pull-up or pull down is necessary. So connect it to SDRAM directly.	–

(5) Host interface pins

(a) Parallel interface pins

No.	Pin Name	I/O	Function	Active
117	CS	I	Chip select input of parallel interface	L
119	RWZ	I	Read and write control input of parallel interface ISA type bus, SH-1 bus: Write strobe 68000 bus : Read/write selection signal	L
120	IOR	I	IO read control input of parallel interface ISA type bus, SH-1 bus : Read strobe 68000 bus : Data strobe (DS)	L
123	IOCHRDY	O	Ready output of parallel interface	L
116-107	AD [10 : 1]	I	Address input of parallel interface	–
143-141, 139-132, 130-128, 126, 125	P_D [15 : 0]	I/O	Data input/output of parallel interface	–

(b) Serial interface pins

No.	Pin Name	I/O	Function	Active
149	TXD	I/O	Serial transmission data output of unsynchronous serial interface (UART)	–
150	RXD	I/O	Serial transmission data input of unsynchronous serial interface (UART)	–

(c) Others

No.	Pin Name	I/O	Function	Active
124	INT	O	Interrupt output to the outside	H
106, 105	PSSEL [1 : 0]	I	Parallel/serial interface selection Input signal to select the outside interface which of parallel interface or serial interface. PSSEL [1 : 0] Select 00 Serial interface (UART) 01 Parallel interface (ISA type bus) 10 Parallel interface (68000 bus) 11 Parallel interface (SH-1 bus)	–

(6) External ROM connection pins

(a) Flash ROM interface pins

No.	Pin Name	I/O	Function	Active
196, 194-189, 186-178	D [15 : 0]	I/O	External ROM data bus Data bus in the external ROM access. Process of pull-up or pull down is necessary.	–
175, 174, 172, 171, 169-167, 165-156	A [17 : 1]	O	External ROM address bus Address bus in the external ROM access. Can addressing the 256k byte space.	–
176	RDZ	O	ROM read Strobe signal which shows a read cycle for external ROM. It becomes the inactive in the idle state.	L
177	WRZ	O	ROM write Strobe signal which shows a write cycle for external ROM.	L

(b) EEPROM interface pins

No.	Pin Name	I/O	Function	Active
145	SO	I/O	Serial transmit data output of clock-synchronous system serial interface (CSI)	–
146	SI	I/O	Serial receive data input of clock-synchronous system serial interface (CSI)	–
147	SCK	I/O	Clock output of clock-synchronous system serial interface (CSI)	–
151	SCS	I/O	Chip select output of clock-synchronous system serial interface (CSI)	–

(7) Clock and reset pins

No.	Pin Name	I/O	Function	Active
1	RESETB	I	Reset RESETB input is asynchronous input. When a signal of fixed low-level width is input without relation to an operation clock, take precedence of all operation, and reset the system. Note: RESETB is low-active.	L
202	HS_CLK	I	Host clock Clock input pin which is supplied to CPU core and built-in peripheral I/O. Please input 27 MHz clock. Perform 2 multiply with internal PLL by 27 MHz clock, 54 MHz clock is supplied to CPU core and internal peripheral I/O.	–

(8) Power supply and ground pins

No.	Pin Name	I/O	Function	Active
5, 31, 52, 63, 78, 95, 127, 140, 166, 187	3.3VDD	–	3.3V power supply 3.3V positive power supply pins. Power supply for 3.3V interface I/O.	–
14, 67, 118, 170	2.5VDD	–	2.5V power supply 2.5V positive power supply pins. Power supply for internal each block.	–
39, 91, 144, 195	2.5GND	–	Ground pins Connect all GND pins to the common ground.	–
9, 35, 56, 68, 82, 99, 131, 148, 173, 188	3.3GND			–
199	PLLAVDD	–	Analog power supply for multiply circuit Analog positive power supply pin for PLL. Supply 2.5V.	–
200	PLLAGND	–	Analog ground for multiply circuit Analog ground for PLL	–
198	PLLDVDD	–	Digital power supply for multiply circuit Digital positive power supply pin for PLL. Supply 2.5V.	–
201	PLLDGND	–	Digital ground for multiply circuit Digital ground for PLL	–
121	IC (H)	–	Internally connected pin Connect to VDD directly.	–
197, 203, 205-207	IC (L)	–	Internally connected pin Connect to ground directly.	–
152, 154, 204	IC (PL)	–	Internally connected pin Connect to ground through a resistor.	–
100, 122	IC (O)	–	Internally connected pin Set to open.	–

(9) Others

No.	Pin Name	I/O	Function	Active
153	DV_INT	I/O	Interrupt pin to the outside for the DV status read out.	H
155	BR_MON	I/O	Shows the bus reset occurred. There is some delay after real bus reset occurred because of set by the built-in firmware.	H
208	IFIROME	I	ROM operation selection input Set to 1 normally.	–

7.3 OUTLINE OF THE PRODUCT

Main newly developed technologies

1. Pickup

The pickup supports quadruple-speed recording for the DVD-R/RW.
A liquid-crystal tilt servo system is adopted for the pickup.

2. Recording-signal-processing LSI

- UPD3330GC (DRIVE Assy: IC101)

The recording-signal-processing module of conventional models consists of two chips, but this has been integrated into a single newly developed recording-signal-processing LSI, enabling stable performance and cost reduction.

3. AV-signal-processing LSI

- M65673WG (MAIN Assy: IC1001)

The AV-signal-processing module of conventional models consists of eleven chips, but this has been integrated into a single newly developed AV-signal-processing LSI, enabling large-scale cost reduction while maintaining the conventional functions. In the new LSI, all the basic functions necessary for a DVD recorder have been integrated. Like conventional models, this model is designed to support multitasking. The main functions are as follows:

- 3-D Y/C separation
- Video decoding
- Frame TBC
- MPEG video encoding
- Dolby Digital Consumer Encoding
- ATA/ATAPI I/F (2 ch)
- Main CPU (32-bit RISC, 54 MHz)
- Graphics engine (OSD, scaling, mixing)
- MPEG video decoding
- Audio decoding (AC-3, MPEG)
- Video encoding
- Progressive conversion
- Audio I/F
- 3-D DNR for playback

4. DV-signal-processing LSI

The DV-signal-processing LSI consists of the following two chips:

- UPD72852AGB-8EU (MAIN Assy: IC5101)

A 400-Mbps two-port PHY LSI in compliance with the IEEE1394a-2000 standards

- UPD72893BGD-LML (MAIN Assy: IC5202)

An EEE1394 link controller LSI having DV (digital video) encoding/decoding functions. Encoding/decoding of digital video signals in compliance with the SD specifications (NTSC/PAL) of the DV standard is supported. The 32-bit RISC CPU is built in for controlling the IEEE1394 bus and sending/receiving AV/C commands.

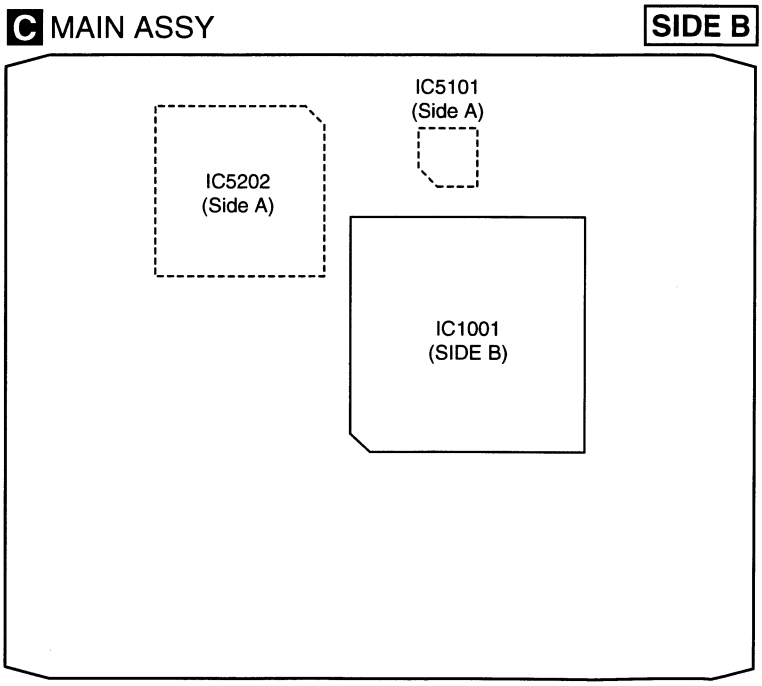


Fig.1 MAIN Assy

System configuration

In each signal-processing LSI of the main function blocks, various processes have been integrated into one chip, which enables simpler system configuration. With the AV-signal-processing LSI at the center, video inputs/outputs, audio inputs/outputs, DV inputs/outputs, writer and various memory cells are connected to it.

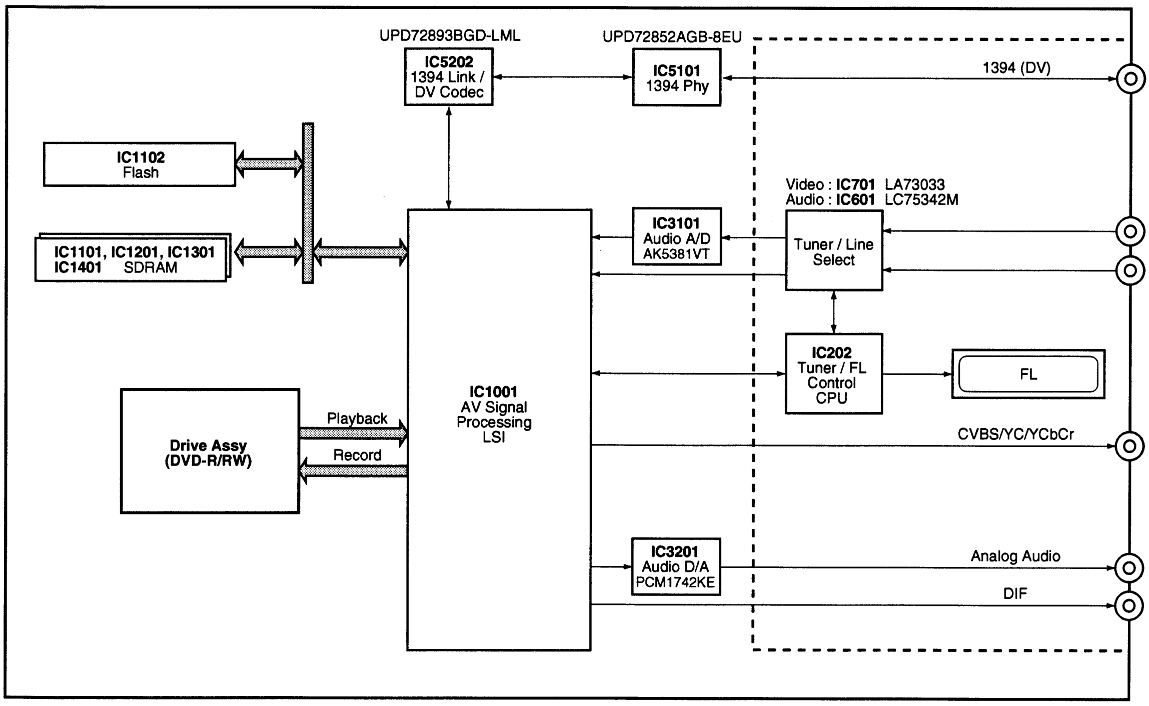

UPD72893BGD-LML
UPD72852AGB-8EU
IC5202
1394 Link / DV Codec
IC5101
1394 Phy
1394 (DV)
IC1102
Flash
IC1101, IC1201, IC1301
IC1401 SDRAM
Video : IC701 LA73033
Audio : IC601 LC75342M
IC3101
Audio A/D
AK5381VT
Tuner / Line Select
IC202
Tuner / FL Control CPU
FL
IC1001
AV Signal Processing LSI
Drive Assy (DVD-R/RW)
Playback
Record
CVBS/YC/YCbCr
IC3201
Audio D/A
PCM1742KE
Analog Audio
DIF

Fig2. System configuration

[Memorized Data]

- EEPROM (IC204 JCKB ASSY)
  The information about Tuner is backed up.
  (Pre-set CH, AFT ON/OFF, Skip CH, etc)
  Information about timed recording
  Other information
  (The state of Volume, remote control mode and last positions (Line/Tuner, etc)

- CPU SDRAM (IC1101 MAIN ASSY)
  The execution area and working area of a program

- FLASH ROM (IC1102 MAIN ASSY)
  The storing area of a program code and setting information

- DEC SDRAM (IC1201 MAIN ASSY)
  The working area of MPEG playback and OSD/Thumbnail
  (OSD is mainly for Disc Menu creation in Video mode)

- ENC SDRAM (IC1301 MAIN ASSY)
  The working area of MPEG recording and analog input and output (AVIO)

- ATA SDRAM (IC1401 MAIN ASSY)
  The working area of ATA/OSD2/Audio TBC (OSD2 is for all GUI.)

- DV SDRAM (IC5204 MAIN ASSY)
  The working area of Link and DV Codec

New functions and specifications

In this model, the following new functions and specifications have been included in addition to those of conventional models:

1. Improved multitasking functions

This model supports DVD multitasking (only in VR mode), which was impossible with conventional models.

ⓐ Pursuit playback

Playback of the title being recorded by the DVD drive in VR mode .

ⓑ Simultaneous recording/playback

Playback of a title other than that being recorded by the DVD drive in VR mode.

2. Advanced disc NAVI

In the conventional disc NAVI function, recorded titles are displayed with still pictures as a list. In the advanced disc NAVI function, the title selected with the cursor is displayed as an animated picture with sound.

3. Improved Still Picture menu in Video mode

The disc NAVI function, which enables displaying a list of recorded titles with still pictures, is enabled in Video mode with this model. Selection from among nine title menus is also supported.

4. Adoption of MPEG2 SIF

In MN1-6 modes, MPEG2 SIF has been adopted, instead of the MPEG1 SIF of conventional models. This enables higher-quality recording for longer hours.

5. Improved editing functions

For DVD, the original/play-list editing in DVD-VR mode available with conventional models is provided.

The automatic-chapter-mark-insertion function in response to a change in audio type (stereo, monaural, bilingual) makes commercial-cutting editing easier.

5. Various-format playback

Playback of WMA, MP3, and JPEG formats is supported.

6. Other functions and specifications

The following main functions and specifications adopted with conventional models are also provided with this model:

- 192-kHz, 24-bit DAC
- 48-kHz, 20-bit ADC
- Digital 3-D Y/C separation circuit
- Digital frame TBC
- 3-D DNR
- DV (iLink) input/output
- Playback with commercials skipped
- CD/video-CD playback
- Picture creation
- Recording with 3/4-D1 and 2/3-D1 resolutions
- Recording mode with 32-step MNs
- LPCM recording
- High-resolution GUI

7.4 DISC/CONTENT FORMAT

Disc / content format playback compatibility

General disc compatibility

This recorder is compatible with a wide range of disc types (media) and formats. Playable discs will generally feature one of the following logos on the disc and/or disc packaging. Note however that some disc types, such as recordable CD and DVD, may be in an unplayable format—see below for further compatibility information.

DVD-Video DVD-R DVD-RW

Audio CD Video CD CD-R CD-RW

Fujicolor CD

- Also compatible with KODAK Picture CD
- *is a trademark of Fuji Photo Film Co. Ltd.*

DVD-R/RW compatibility

This recorder will play and record DVD-R/RW discs.

Compatible media:

- DVD-RW Ver. 1.1, Ver. 1.1 / 2x and Ver. 1.2
- DVD-R Ver. 2.0 and Ver. 2.0 / 4x / 8x

Recording formats:

- DVD-R: DVD-Video format (Video mode)
- DVD-RW: Video Recording (VR) format and DVD-Video format (Video mode)

CD-R/RW compatibility

This recorder cannot record CD-R or CD-RW discs.

- Compatible formats: CD-Audio, Video CD, ISO 9660 CD-ROM* containing MP3, WMA or JPEG files
  ** ISO 9660 Level 1 or 2 compliant. CD physical format: Mode1, Mode2 XA Form1. Romeo and Joliet file systems are both compatible with this recorder.*
- Multi-session playback: Yes (except CD-Audio and Video CD)
- Unfinalized disc playback: CD-Audio only

Compressed audio compatibility

- Compatible media: CD-ROM, CD-R, CD-RW
- Compatible formats: MPEG-1 Audio Layer 3 (MP3), Windows Media Audio (WMA)
- Sampling rates: 44.1 or 48kHz
- Bit-rates: Any (128Kbps or higher recommended)
- VBR (variable bit rate) MP3 playback: Yes
- VBR WMA playback: No
- WMA encoder compatibility: Windows Media Codec 8 *(files encoded using Windows Media Codec 9 may be playable but some parts of the specification are not supported; specifically, Pro, Lossless, Voice and VBR)*
- DRM (Digital Rights Management) file playback: No (see also DRM in the *Glossary*on page 97)
- File extensions: .mp3, .wma (these must be used for the recorder to recognize MP3 and WMA files – do not use for other file types)
- File structure: Up to 99 folders / 999 files (if these limits are exceeded, only files and folders up to these limits are playable)

WMA (Windows Media Audio) compatibility

The Windows Media® logo printed on the box indicates that this recorder can playback Windows Media Audio content.

WMA is an acronym for Windows Media Audio and refers to an audio compression technology developed by Microsoft Corporation. WMA content can be encoded by using Windows Media® Player version 7, 7.1, Windows Media® Player for Windows® XP, or Windows Media® Player 9 Series.

Microsoft, Windows Media, and the Windows logo are trademarks, or registered trademarks of Microsoft Corporation in the United States and/or other countries.

JPEG file compatibility

- Compatible formats: Baseline JPEG and EXIF 2.2* still image files
  ** File format used by digital still cameras*
- Sampling ratio: 4:4:4, 4:4:2, 4:2:0
- Horizontal resolution: 160 – 5120 pixels
- Vertical resolution: 120 – 3840 pixels
- Progressive JPEG compatible: No
- File extensions: .jpg, jpeg, jif, jfif (must be used for the recorder to recognize JPEG files – do not use for other file types)
- File structure: The recorder can load up to 99 folders / 999 files at one time *(if there are more files/folders that this on the disc then more can be reloaded)*

PC-created disc compatibility

Discs recorded using a personal computer may not be playable in this unit due to the setting of the application software used to create the disc. In these particular instances, check with the software publisher for more detailed information.

Discs recorded in packet write mode (UDF format) are not compatible with this recorder.

Check the DVD-R/RW or CD-R/RW software disc boxes for additional compatibility information.

7.5 CLEANING

Before shipping out the product, be sure to clean the following positions by using the prescribed cleaning tools:

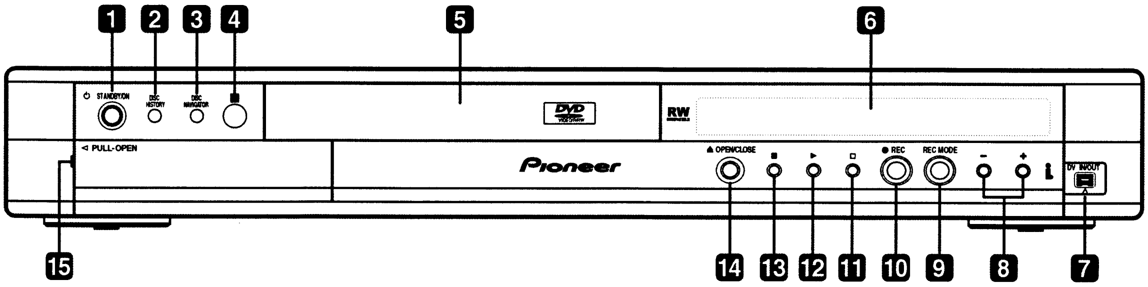
Position to be cleaned	Cleaning tools
Pickup lenses	Cleaning liquid : GEM1004 Cleaning paper : GED-008

Position to be cleaned	Cleaning tools
Fans	Cleaning paper : GED-008

8. PANEL FACILITIES

8.1 FRONT SECTION

Front panel


1
2
3
4
5
6
STANDBY/ON
DISC HISTORY
DISC NAVIGATOR
DVD
RW
PULL-OPEN
Pioneer
OPEN/CLOSE
REC
REC MODE
–
+
DV IN/OUT
15
14
13
12
11
10
9
8
7

1 ⏻ STANDBY/ON
Press to switch the recorder on/into standby.

2 DISC HISTORY
Press to display the Disc History screen.

3 DISC NAVIGATOR
Press to directly access the Disc Navigator screen.

4 IR remote sensor

5 Disc tray

6 Front panel display
See *Display* on page 21 for details.

7 DV IN/OUT jack (DVR-320 only)
Digital input/output jack for use with a DV camcorder.

8 +/–
Use to change TV channels, skip chapters/tracks, etc.

9 REC MODE
Press repeatedly to change the recording mode (picture quality).

10 ● REC
Press to start recording.

11 □
Press to stop recording.

12 ►
Press to start or restart playback.

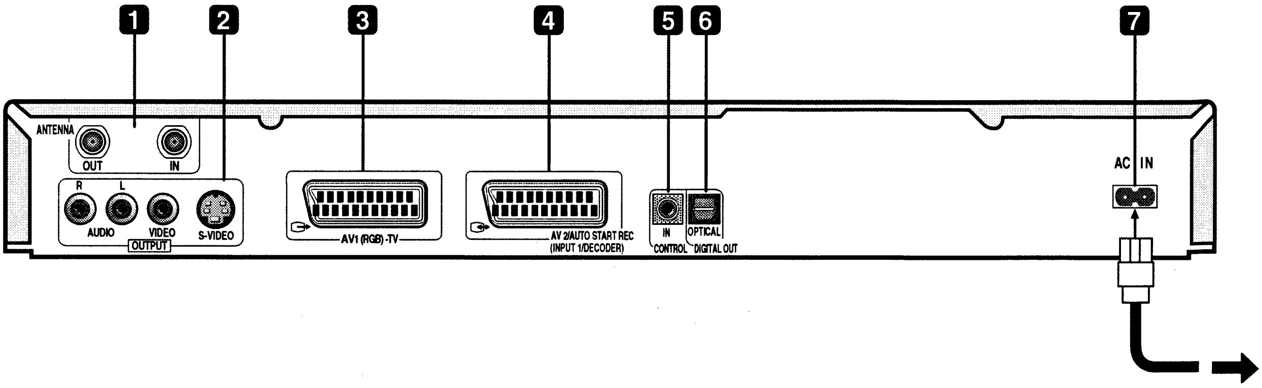
13 ■
Press to stop playback.

14 ▲ OPEN/CLOSE
Press to open/close the disc tray.

15 Front panel inputs
Pull the cover down where indicated to access the front panel input jacks. Especially convenient for connecting camcorders and other portable equipment.

8.2 REAR PART

Rear panel connections



1 ANTENNA IN/OUT
Connect your TV antenna to the **ANTENNA IN** jack. The signal is passed through to the **ANTENNA OUT** jack for connection to your TV.

2 OUTPUT jacks
Stereo analog audio, video and S-video outputs for connection to a TV or AV amplifier/receiver.

3 AV1(RGB)-TVAV connector
Audio/video output SCART-type AV connector for connecting to a TV or other equipment with a SCART connector. The video output is switchable between video, S-video and RGB. See page *AV1 Out* for how to set this up.

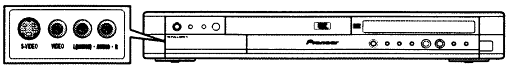
4 AV2/AUTO START REC (INPUT 1/DECODER) AV connector
Audio/video input/output SCART-type AV connector for connecting to a VCR, or other equipment with a SCART connector. The input accepts video, S-video and RGB. See *AV2/L1 In* for how to set this up.

5 CONTROL IN
Use to control this recorder from the remote sensor of another Pioneer component with a **CONTROL OUT** terminal and bearing the Pioneer SR mark. Connect the **CONTROL OUT** of the other component to the **CONTROL IN** of this recorder using a mini-plug cord.

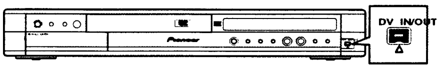
6 DIGITAL OUT OPTICAL
For connecting to an AV receiver, Dolby Digital/DTS/ MPEG decoder or other equipment with optical digital input.

7 AC IN – Power inlet

Front panel connections



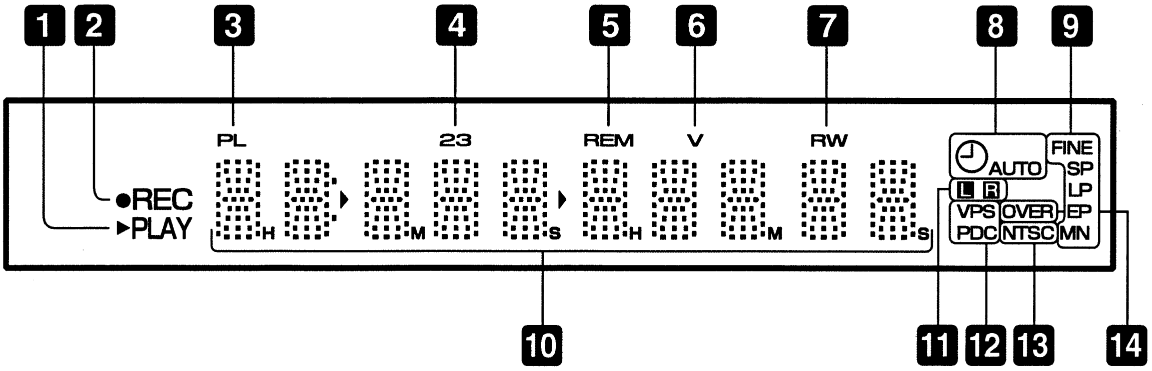
On the left side of the front panel a flip-down cover hides a third audio/video input, consisting of an S-video and standard (composite) video jack, and stereo analog audio jacks.



On the right side is the DV input/output i.LINK connector. This is for connection to a DV camcorder.

8.3 DISPLAY

Display



1 ► PLAY
Lights during playback; blinks when paused.

2 ● REC
Lights during recording; blinks when recording is paused.

3 PL
Lights when a VR mode disc is loaded and the recorder is in Play List mode.

4 2 3
Shows the remote control mode (if nothing is displayed, the remote control mode is 1).

5 REM
Lights when the character display is showing the remaining available recording time.

6 V
Lights when an unfinalized Video mode disc is loaded.

7 R / RW
Indicates the type of recordable DVD loaded: DVD-R or DVD-RW.

8 ◷
Lights when a timer recording has been set. (Indicator blinks if the timer has been set but there isnít a recordable disc loaded)

AUTO
Lights when Auto Start Recording has been set, and during Auto Start Recording.

9 Recording quality indicators

FINE
Lights when the recording mode is set to **FINE** (best quality).

SP
Lights when the recording mode is set to **SP** (standard play).

LP
Lights when the recording mode is set to **LP** (long play).

EP
Lights when the recording mode is set to **EP** (extended play).

MN
Lights when the recording mode is set to **MN** (manual recording level) mode.

10 Character display

11 L R
Indicates which channels of a bilingual broadcast are recorded.

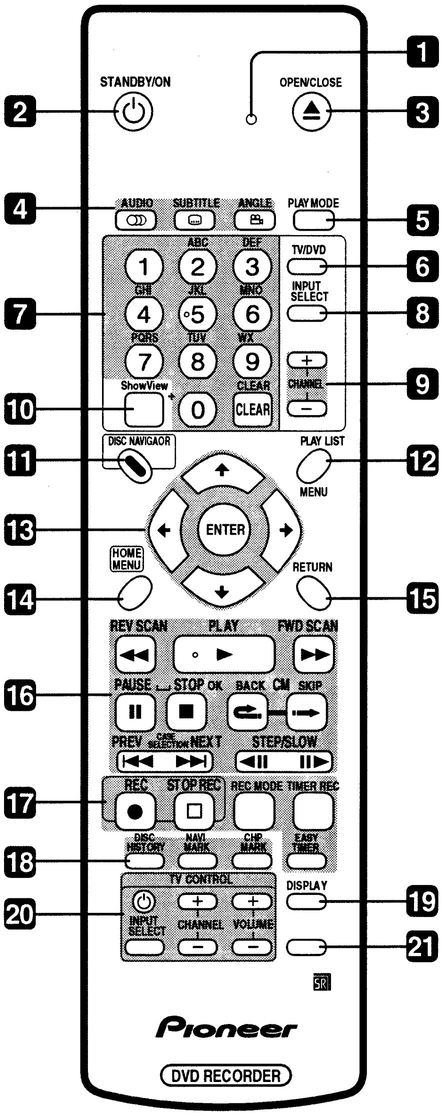
12 VPS / PDC
Lights when receiving a VPS/PDC broadcast during a VPS/PDC-enabled timer recording.

13 NTSC
Lights when playing NTSC format video.

14 OVER
Lights when the analog audio input level is too high.

8.4 REMOTE CONTROL

Remote control


1
2
STANDBY/ON
OPEN/CLOSE
3
4
AUDIO
SUBTITLE
ANGLE
PLAY MODE
5
ABC
DEF
TV/DVD
6
GHI
JKL
MNO
INPUT SELECT
7
8
PQRS
TUV
WX
CHANNEL
9
ShowView
CLEAR
10
DISC NAVIGAOR
PLAY LIST
11
12
MENU
ENTER
13
HOME MENU
RETURN
14
15
REV SCAN
PLAY
FWD SCAN
PAUSE
STOP
BACK
CM
SKIP
16
PREV
CASE SELECTION
NEXT
STEP/SLOW
REC
STOP REC
REC MODE
TIMER REC
17
DISC HISTORY
NAVI MARK
CHP MARK
EASY TIMER
18
TV CONTROL
DISPLAY
19
20
INPUT SELECT
CHANNEL
VOLUME
21
Pioneer
DVD RECORDER

1 Remote control indicator
Lights when setting up the remote control for use with a TV and when setting the remote control mode

2 ⏻ STANDBY/ON
Press to switch the recorder on/into standby.

3 ⏏ OPEN/CLOSE
Press to open/close the disc tray.

4 DVD playback functions

AUDIO
Changes the audio language or channel. (When the recorder is stopped, press to change the tuner audio.)

SUBTITLE
Displays/changes the subtitles included in multilingual DVD-Video discs.

ANGLE
Switches camera angles on discs with multi-angle scenes.

5 PLAY MODE
Press to display the Play Mode menu (for features such as search, repeat and program play).

6 TV/DVD
Press to switch between 'TV mode', in which you get the picture and sound from the TV's tuner, and 'DVD mode', in which you get picture and sound from the recorder's tuner (or an external input).

7 Alphanumeric buttons and CLEAR
Use the number buttons for track/chapter/title selection; channel selection, and so on. The same buttons can also be used to enter names for titles, discs and so on.

Use **CLEAR** to clear an entry and start again.

8 INPUT SELECT
Press to change the input to use for recording.

9 CHANNEL +/–
Press to change the channel of the built-in TV tuner.

10 SHOWVIEW,Video Plus + (for WV model)
Press, then use the number buttons to enter a ShowView programming number for timer recording.

11 DISC NAVIGATOR / TOP MENU

Press to display the Disc Navigator screen, or the top menu if a DVD-Video disc is loaded.

12 PLAY LIST / MENU
Press to switch between Original and Play List content on VR mode discs, or display the disc menu if a DVD-Video disc is loaded.

13 ↑/↓/←/→ (cursor buttons)and ENTER
Used to navigate all on-screen displays. Press **ENTER** to select the currently highlighted option.

14 HOME MENU
Press to display the Home Menu, from which you can navigate all the functions of the recorder.

15 RETURN
Press to go back one level in the on-screen menu or display.

16 Playback controls

◄◄ REV SCAN / FWD SCAN ►►
Press to start reverse or forward scanning. Press again to change the speed.

► PLAY
Press to start playback.

II PAUSE
Press to pause playback or recording.

■ STOP
Press to stop playback.

CM BACK(commercial back)
Press repeatedly to skip progressively backward through the audio or video playing.

CM SKIP(commercial skip)
Press repeatedly to skip progressively forward through the audio or video playing.

|◄◄ PREV / NEXT ►►|
Press to skip to the previous or next title/chapter/track/folder; or to display the previous or next menu page.

◄II STEP/SLOW II►
During playback, press to start slow-motion playback; while paused, press to show the previous or next video frame.

17 Recording controls

● REC
Press to start recording. Press repeatedly to set the recording time in blocks of 30 mins.

□ STOP REC
Press to stop recording.

REC MODE
Press repeatedly to change the recording mode (picture quality).

TIMER REC
Press to set a timer recording from the standard Timer Recording screen.

EASY TIMER
Press to set a timer recording from the Easy Timer Recording screen.

18 DISC HISTORY
Press to display summary information (disc name, recording time left, etc.) from the last 30 recordable discs loaded.

NAVI MARK
Press to select a thumbnail picture for the current title for use in the Disc Navigator screen.

CHP MARK
Press to insert a chapter marker when playing/recording a VR mode DVD-RW disc

19 DISPLAY
Displays/changes the on-screen information displays.

20 TV CONTROL
After setting up, use these controls to control your TV.

21 TV DIRECT REC
Press to start recording whatever channel your TV is set to.

■ Jigs list

Name	Jig No.	Remarks
Service Remote Control Unit	GGF1381	adjustment, diagnosis
DVD Test Disc (DVD-Video)	GGV1025	Check of DVD-Video
DVD Recorder Data Disc	GGV1179 (*)	diagnosis (ID data setting)

(*) : GGV1134 is now released, however GGV1179 will be released in JUNE/2004.
Until GGV1179 is released, use GGV1134 data disc.

Pioneer sound.vision.soul

Service Manual

ORDER NO.
RRV2992

DVD RECORDER

DVR-320-S

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Region No.	Serial No. Piease confirm 3rd & 4th alphabetical letters.
DVR-320-S	RFXU	AC110-120V/220-240V	3	&&PG######$$
DVR-320-S	RDXU/RD	AC110-127V/220-240V	4	&&PG######$$

- **This service manual should be used together with the following manual(s):**

Model No.	Order No.	Remarks
DVR-220-S/KU/CA	RRV2925	

CONTENTS

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2. PCB CONNECTION DIAGRAM 5
3. SCHEMATIC DIAGRAM 6
4. MODEL SETTING 8

PIONEER CORPORATION 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan
PIONEER ELECTRONICS (USA) INC. P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
PIONEER EUROPE NV Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 253 Alexandra Road, #04-01, Singapore 159936

© PIONEER CORPORATION 2004

T – ZZK JULY 2004 Printed in Japan

SAFETY INFORMATION

LITHIUM BATTERY NOTICE

CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

When replacing the lithium batteries, follow the note below. Dispose of the used battery promptly. Keep away from children. Do not disassemble and do not dispose of in fire.
The battery used in this device may present a fire or chemical hazard if mistreated. Do not recharge, disassemble, heat above 100°C or incinerate. Replace only with the same Part Number. Use of another battery may present a risk of fire or explosion.

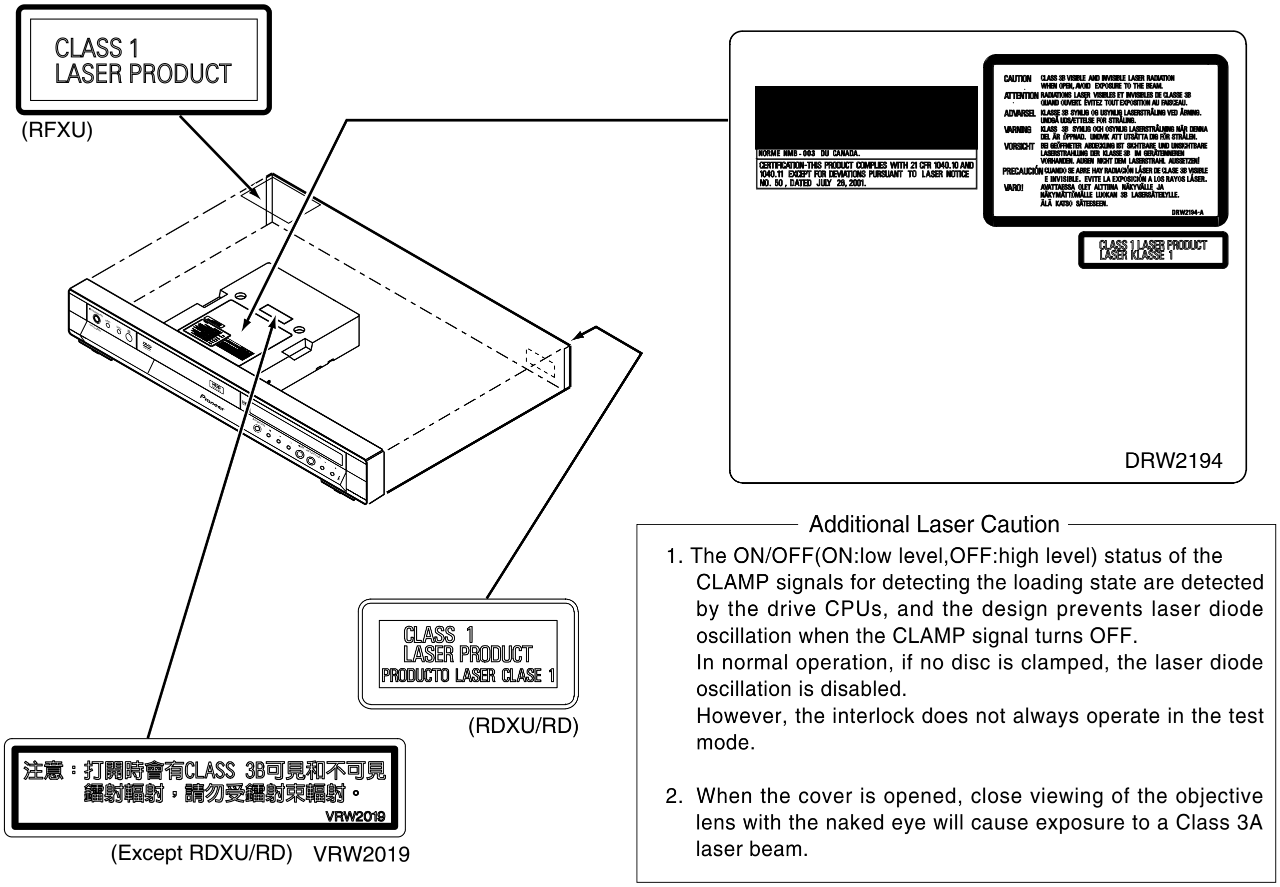
Note : The lithium battery installation position is shown in the exploded views.

■ LABEL CHECK

IMPORTANT
THIS PIONEER APPARATUS CONTAINS LASER OF CLASS 1.
SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

LASER DIODE CHARACTERISTICS
MAXIMUM OUTPUT POWER: 25 mW
WAVELENGTH: 654 - 662 nm

LASER DIODE CHARACTERISTICS
MAXIMUM OUTPUT POWER: 36 mW
WAVELENGTH: 780 - 787 nm



CLASS 1
LASER PRODUCT
(RFXU)

[redacted]
NORME NMB - 003 DU CANADA.
CERTIFICATION-THIS PRODUCT COMPLIES WITH 21 CFR 1040.10 AND 1040.11 EXCEPT FOR DEVIATIONS PURSUANT TO LASER NOTICE NO. 50 , DATED JULY 26, 2001.

CAUTION CLASS 3B VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN, AVOID EXPOSURE TO THE BEAM.
ATTENTION RADIATIONS LASER VISIBLES ET INVISIBLES DE CLASSE 3B QUAND OUVERT. ÉVITEZ TOUT EXPOSITION AU FAISCEAU.
ADVARSEL KLASSE 3B SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARNING KLASS 3B SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. UNDVIK ATT UTSÄTTA DIG FÖR STRÅLEN.
VORSICHT BEI GEÖFFNETER ABDECKUNG IST SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG DER KLASSE 3B IM GERÄTEINNEREN VORHANDEN. AUGEN NICHT DEM LASERSTRAHL AUSSETZEN!
PRECAUCIÓN CUANDO SE ABRE HAY RADIACIÓN LÁSER DE CLASE 3B VISIBLE E INVISIBLE. EVITE LA EXPOSICIÓN A LOS RAYOS LÁSER.
VARO! AVATTAESSA OLET ALTTIINA NÄKYVÄLLE JA NÄKYMÄTTÖMÄLLE LUOKAN 3B LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
DRW2194-A

CLASS 1 LASER PRODUCT
LASER KLASSE 1

DRW2194

CLASS 1
LASER PRODUCT
PRODUCTO LASER CLASE 1
(RDXU/RD)

注意：打開時會有CLASS 3B可見和不可見
鐳射輻射，請勿受鐳射束輻射。
VRW2019
(Except RDXU/RD) VRW2019

Additional Laser Caution

1. The ON/OFF(ON:low level,OFF:high level) status of the CLAMP signals for detecting the loading state are detected by the drive CPUs, and the design prevents laser diode oscillation when the CLAMP signal turns OFF.
   In normal operation, if no disc is clamped, the laser diode oscillation is disabled.
   However, the interlock does not always operate in the test mode.
2. When the cover is opened, close viewing of the objective lens with the naked eye will cause exposure to a Class 3A laser beam.

1. CONTRAST OF MISCELLANEOUS PARTS

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Screws adjacent to ▼ mark on product are used for disassembly.*
- *Reference Nos. indicate the pages and Nos. in the service manual for the base model.*
- *For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions, apply as you think it appropriate.)*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω → 56×10^1 → 561 .... RD1/4PU $\boxed{5}\boxed{6}\boxed{1}$ J
47k Ω → 47×10^3 → 473 .... RD1/4PU $\boxed{4}\boxed{7}\boxed{3}$ J
0.5 Ω → R50 .... RN2H $\boxed{R}\boxed{5}\boxed{0}$ K
1 Ω → 1R0 .... RS1P $\boxed{1}\boxed{R}\boxed{0}$ K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω → 562×10^1 → 5621 .... RN1/4PC $\boxed{5}\boxed{6}\boxed{2}\boxed{1}$ F

■ CONTRAST TABLE

DVR-320-S/RFXU, RDXU/RD and DVR-220-S/KU/CA are constructed the same except for the following :

Ref. No.	Mark	Symbol and Description	Part No.			Remarks
			DVR-220-S /KU/CA	DVR-320-S /RFXU	DVR-320-S /RDXU/RD	
		PCB ASSEMBLIES				
P11- 2		JCKB Assy	VWV2027	VWV2042	VWV2042	
P11- 6	⚠	POWER SUPPLY Unit	VWR1378	VWR1381	VWR1381	∗1
		PACKING SECTION				
P9- 1	⚠	Power Cable	ADG7021	ADG7097	ADG1158	
P9- 2		Audio / Video Cable	XDE3049	VDE1077	VDE1077	
P9- 4		Remote Control	VXX2928	VXX2930	VXX2928	
P9- 6	NSP	Dry Cell Battery (R6P, AA)	VEM1031	VEM1030	VEM1030	
P9- 7		Operating Instructions (English)	VRB1333	VRB1347	VRB1337	
		Operating Instructions (Chinese)	Not used	VRC1218	Not used	
		Operating Instructions (Spanish)	Not used	Not used	VRC1212	
P9- 8	NSP	Leaflet	VRY1147	Not used	Not used	
P9- 9	NSP	Warranty Card	ARY7045	Not used	Not used	
P9-12		IM Holder	VHC1116	VHC1115	VHC1115	
P9-13		Front Pad	VHA1368	VHA1364	VHA1364	
P9-14		Rear Pad	VHA1369	VHA1365	VHA1365	
P9-15		Packing Case	VHG2504	VHG2572	VHG2561	
	NSP	Card	VRY1132	Not used	Not used	
		EXTERIOR SECTION				
P11- 8		DC Fan Motor	VXM1115	VXM1114	VXM1114	
P11-11		Connector Assy (13P)	PF13PP-D47	Not used	Not used	
P11-11		Connector Assy (15P)	Not used	VKP2328	VKP2328	
P11-12		Flexible Cable (8P)	VDA2011	VDA1997	VDA1997	
P11-13		Flexible Cable (24P)	VDA2012	VDA1998	VDA1998	
P11-14		Flexible Cable (32P)	VDA2013	VDA1999	VDA1999	
P11-16		Flexible Cable (13P)	VDA2015	VDA2001	VDA2001	
P11-17		Flexible Cable (40P)	VDA2020	VDA2006	VDA2006	
P11-28		Rear Panel	VNA2681	VNA2759	VNA2746	
P11-36	NSP	Base Chassis Assy	VXA2682	VXA2681	VXA2681	
P11-38		DVD RW Badge	VAM1139	VAM1140	VAM1140	
P11-41		Bonnet Label	VRW2104	VRW2148	VRW2145	
	NSP	Clamp	Not used	VEC2418	VEC2418	No. 1
	NSP	Fan Duct	Not used	VNK5427	VNK5427	No. 2
		Screw	Not used	BPZ30P250FTC	BPZ30P250FTC	No. 3
		Seal/Tape	ZTA-156A-19	CNM8871	CNM8871	No. 4
	NSP	Laser Caution Label CHH	Not used	VRW2019	Not used	∗2

Notes : For PCB ASSEMBLIES, Refer to “CONTRAST OF PCB ASSEMBLIES”, “2. PCB CONNECTION DIAGRAM” and “3. SCHEMATIC DIAGRAM”.
The numbers in the remarks column correspond to the numbers on the “ EXPLODED VIEWS ”.
*1 POWER SUPPLY UNIT has no service part.
*2 Refer to “LABEL CHECK”.

Ref. No.	Mark	Symbol and Description	Part No.			Remarks
			DVR-220-S /KU/CA	DVR-320-S /RFXU	DVR-320-S /RDXU/RD	
		FRONT PANEL SECTION				
P13- 3		Flexible Cable (19P)	VDA2016	VDA2002	VDA2002	
P13- 4		Flexible Cable (7P)	VDA2019	VDA2005	VDA2005	
P13- 5		Front Panel Assy	VXA2643	VXA2652	VXA2683	
P13-12	NSP	Power Key	VNK5539	VNK5443	VNK5443	
P13-14	NSP	Sensormatic Seal	VAN1004	Not used	Not used	
P13-15	NSP	FL Lens	VNK5484	VNK5485	VNK5485	
P13-16	NSP	Front Panel	VNK5492	VNK5489	VNK5489	
P13-17		Jack Door	VNK5494	VNK5497	VNK5494	

■ CONTRAST OF PCB ASSEMBLIES

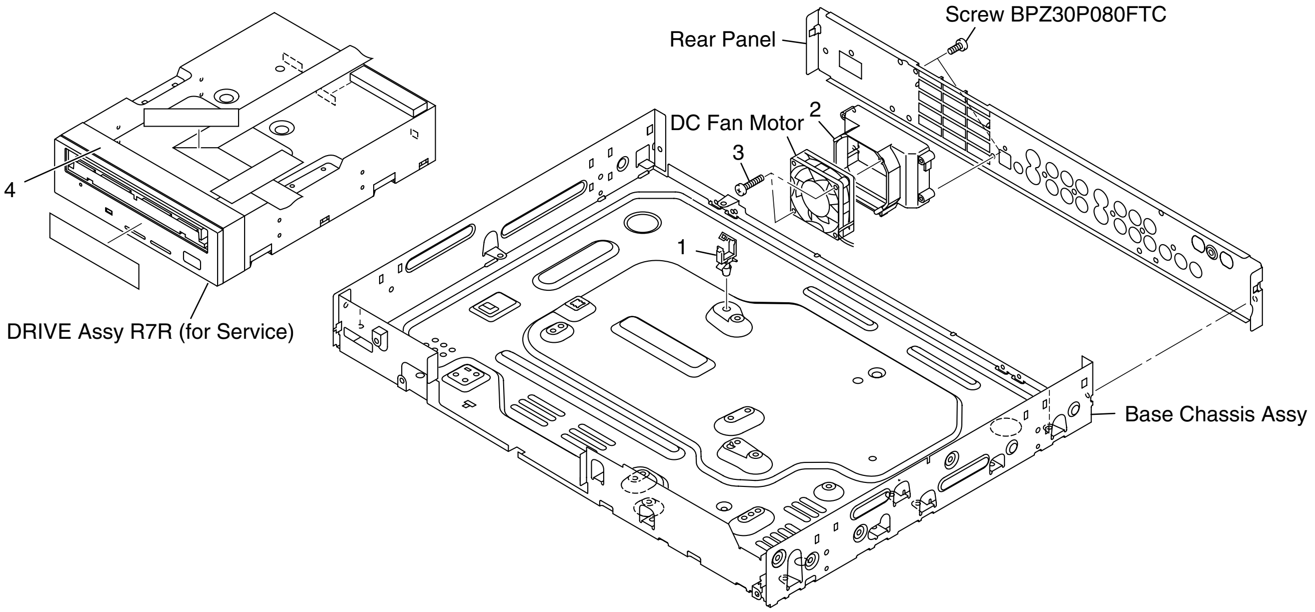
B F JCKB ASSY

VWV2042 and VWV2027 are constructed the same except for the following :

Mark	Symbol and Description	Part No.		Remarks
		VWV2027	VWV2042	
	IC202	PEG034B	PEG050B	
	D607	UDZS5.1B	UDZS5R1(B)	
	C239	CKSRYF105Z10	CKSRYF104Z25	
	R203	RS1/16S393J	RS1/16S682J	
	R207	RS1/16S682J	RS1/16S393J	

■ EXPLODED VIEWS

■ EXTERIOR SECTION



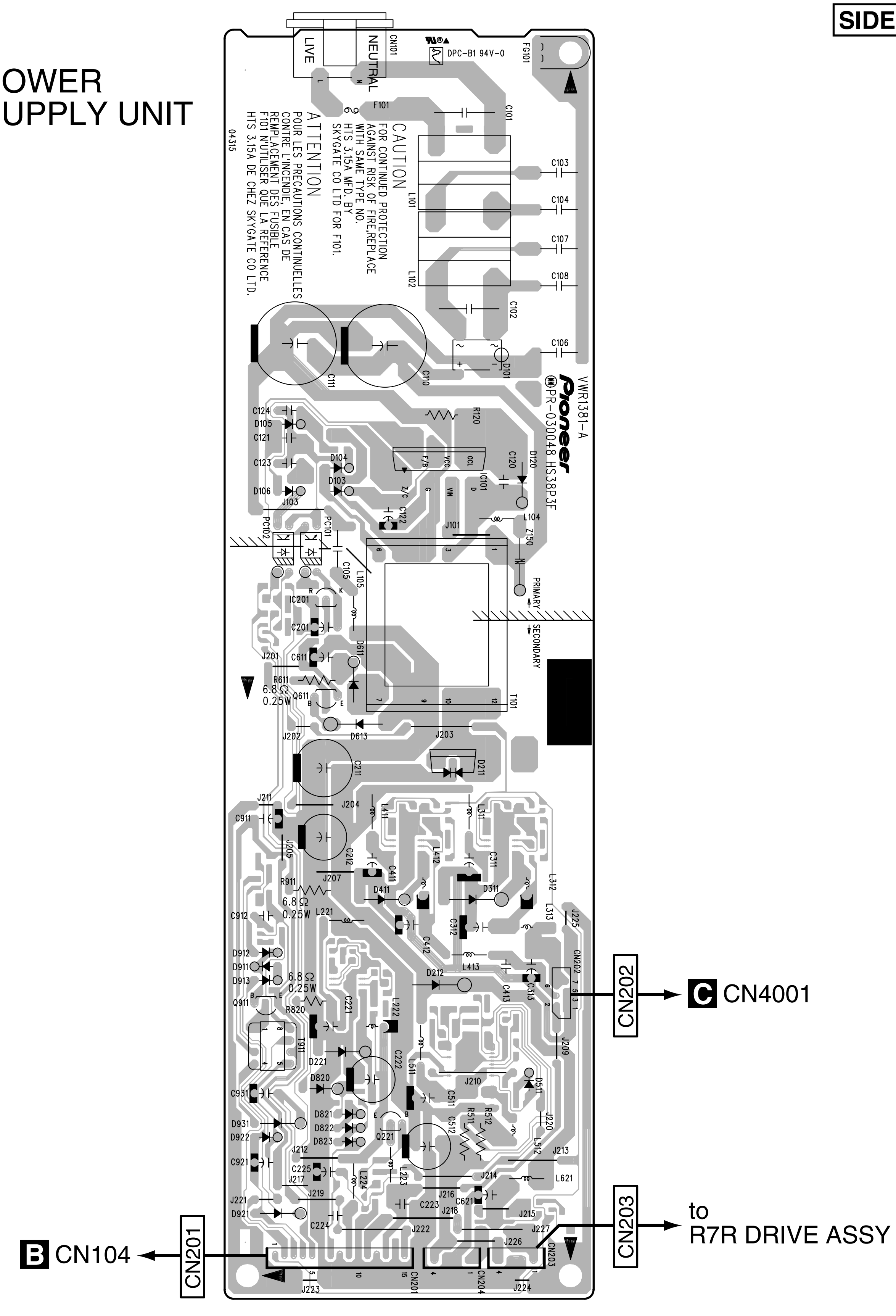
2. PCB CONNECTION DIAGRAM

2.1 POWER SUPPLY UNIT

SIDE A

SIDE A

G F POWER SUPPLY UNIT



CN101
LIVE
NEUTRAL
DPC-B1 94V-0
FG101
F101
C101
CAUTION
FOR CONTINUED PROTECTION AGAINST RISK OF FIRE,REPLACE WITH SAME TYPE NO. HTS 3.15A MFD. BY SKYGATE CO LTD FOR F101.
ATTENTION
POUR LES PRECAUTIONS CONTINUELLES CONTRE L'INCENDIE, EN CAS DE REMPLACEMENT DES FUSIBLE F101 N'UTILISER QUE LA REFERENCE HTS 3.15A DE CHEZ SKYGATE CO LTD.
04315
C103
C104
C107
C108
L101
L102
C102
C106
D101
C111
C110
VWR1381-A
Pioneer
PR-030048 HS38P3F
R120
IC101
D120
C120
L104
Z150
J101
C124
D105
C121
C123
D104
D103
D106
J103
C122
PC102
PC101
C105
L105
IC201
PRIMARY
SECONDARY
C201
C611
D611
J201
R611 6.8Ω 0.25W
Q611
T101
D613
J202
J203
C211
D211
J211
J204
L411
L311
C911
J205
C212
L412
C311
L312
R911 6.8Ω 0.25W
J207
C411
D411
D311
L313
J225
C912
L221
C412
C312
D912
D911
D913
Q911
6.8Ω 0.25W
R820
L413
D212
C413
C313
CN202
C221
L222
IC911
J209
D221
C222
D820
L511
D511
C931
C511
J210
D821
D822
D823
Q221
R511
R512
C512
J220
D931
D922
J212
L512
J213
C921
C225
J217
L224
L223
J214
L621
J219
J216
C621
J221
D921
C223
J218
J215
C224
J222
J227
J226
CN203
CN201
CN204
J223
J224
CN202
C CN4001
CN203
to R7R DRIVE ASSY
B CN104
CN201

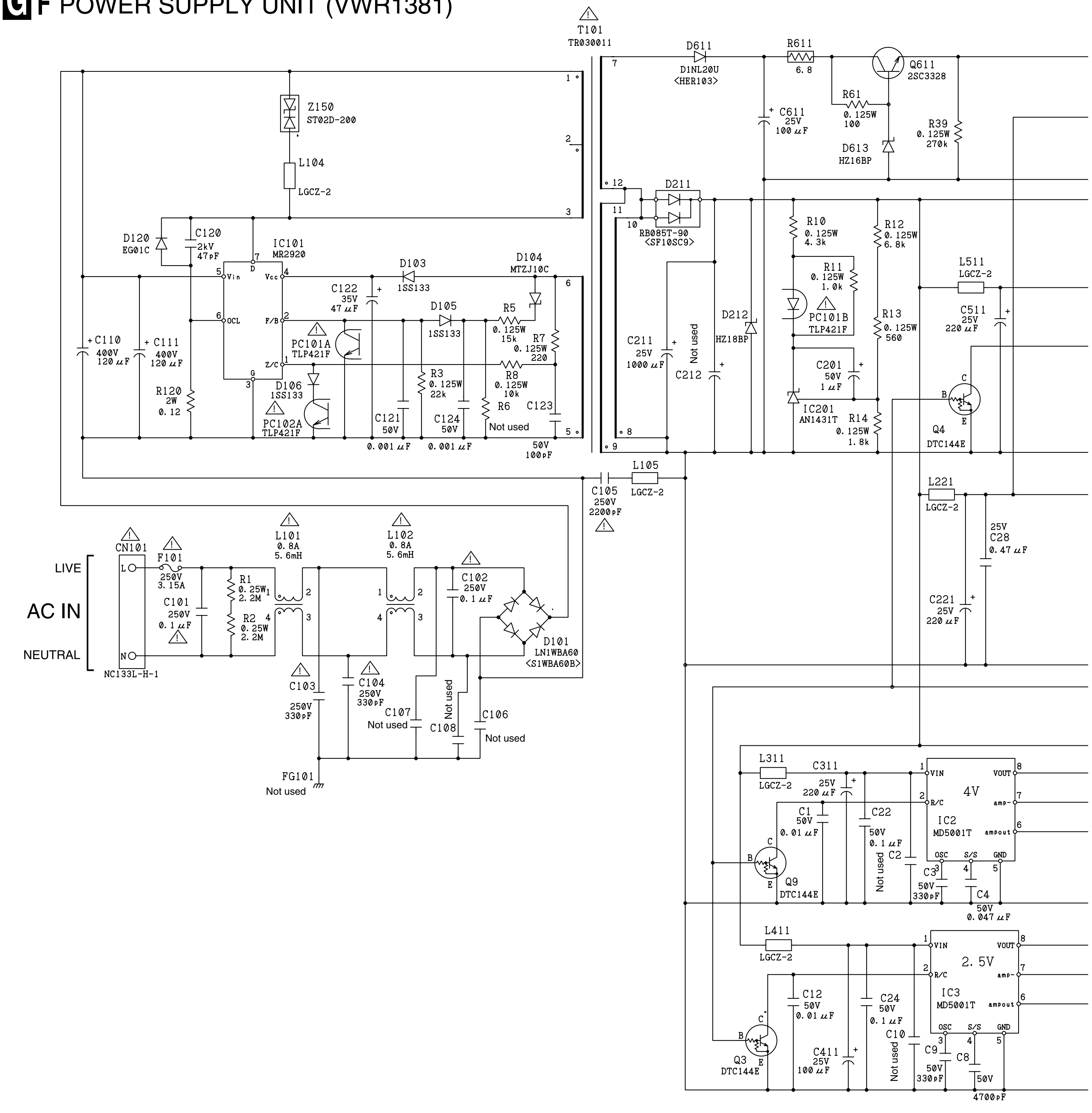
G F

G F

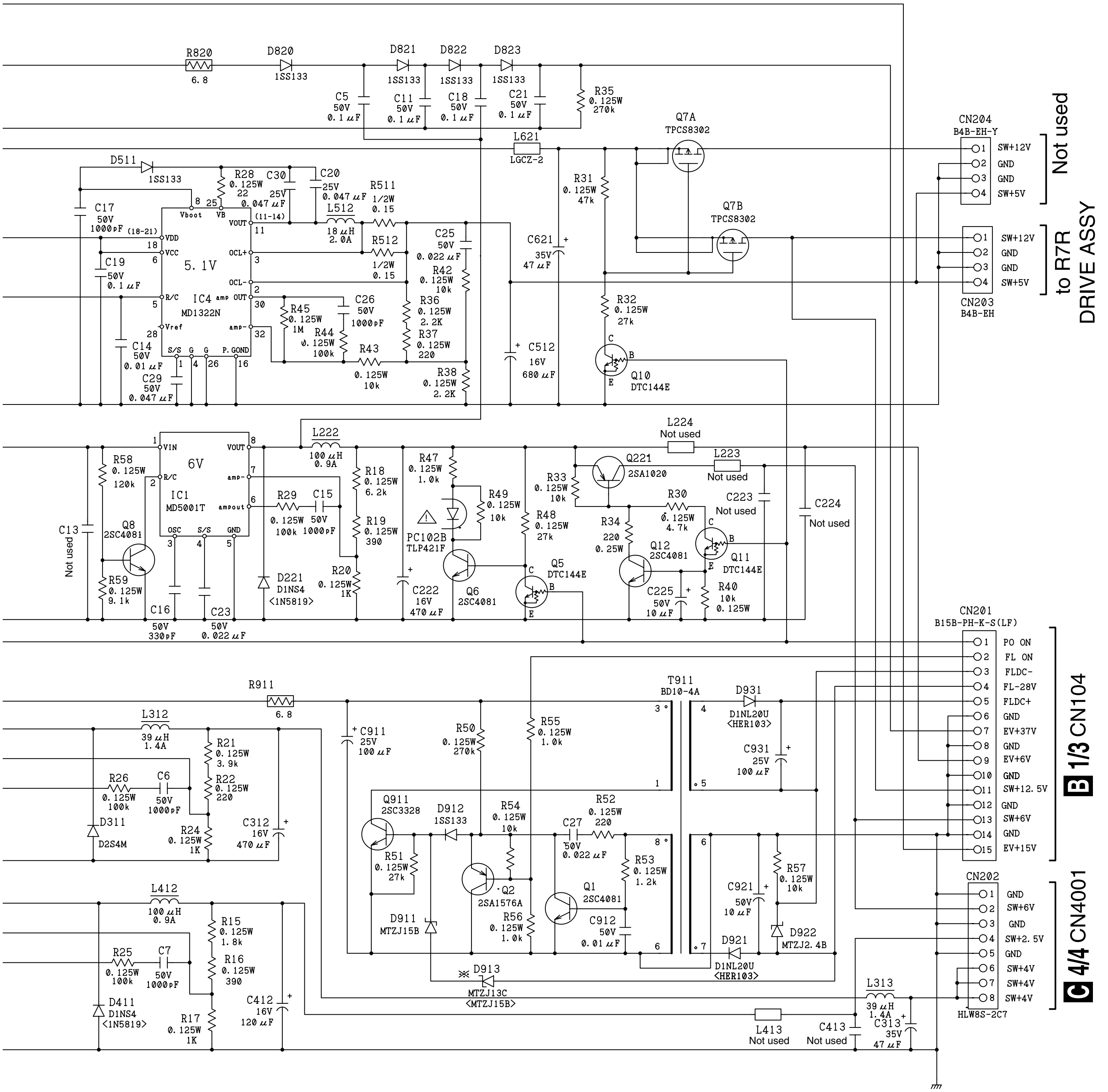
3. SCHEMATIC DIAGRAM

3.1 POWER SUPPLY UNIT

G F POWER SUPPLY UNIT (VWR1381)



T101
TR030011
D611
D1NL20U
<HER103>
R611
6.8
Q611
2SC3328
R61
0.125W
100
C611
25V
100μF
D613
HZ16BP
R39
0.125W
270k
Z150
ST02D-200
L104
LGCZ-2
D211
RB085T-90
<SF10SC9>
R10
0.125W
4.3k
R12
0.125W
6.8k
R11
0.125W
1.0k
PC101B
TLP421F
R13
0.125W
560
L511
LGCZ-2
C511
25V
220μF
D120
EG01C
C120
2kV
47pF
IC101
MR2920
Vin
Vcc
OCL
F/B
Z/C
D
G
D103
1SS133
D104
MTZJ10C
C122
35V
47μF
D105
1SS133
R5
0.125W
15k
R7
0.125W
220
PC101A
TLP421F
C110
400V
120μF
C111
400V
120μF
R120
2W
0.12
D106
1SS133
PC102A
TLP421F
R3
0.125W
22k
R8
0.125W
10k
R6
Not used
C123
50V
100pF
C121
50V
0.001μF
C124
50V
0.001μF
D212
HZ18BP
C211
25V
1000μF
C212
Not used
C201
50V
1μF
IC201
AN1431T
R14
0.125W
1.8k
Q4
DTC144E
C105
250V
2200pF
L105
LGCZ-2
L221
LGCZ-2
C28
25V
0.47μF
C221
25V
220μF
CN101
LIVE
AC IN
NEUTRAL
NC133L-H-1
F101
250V
3.15A
C101
250V
0.1μF
R1
0.25W
2.2M
R2
0.25W
2.2M
L101
0.8A
5.6mH
L102
0.8A
5.6mH
C102
250V
0.1μF
D101
LN1WBA60
<S1WBA60B>
C103
250V
330pF
C104
250V
330pF
C107
Not used
C108
Not used
C106
Not used
FG101
Not used
L311
LGCZ-2
C311
25V
220μF
C1
50V
0.01μF
C22
50V
0.1μF
C2
Not used
C3
50V
330pF
C4
50V
0.047μF
IC2
MD5001T
4V
VIN
VOUT
R/C
amp-
ampout
OSC
S/S
GND
Q9
DTC144E
L411
LGCZ-2
C12
50V
0.01μF
C24
50V
0.1μF
C10
Not used
C411
25V
100μF
C9
50V
330pF
C8
50V
4700pF
IC3
MD5001T
2.5V
Q3
DTC144E


R820
6.8
D820
1SS133
D821
D822
D823
1SS133
1SS133
1SS133
C5
50V
0.1μF
C11
50V
0.1μF
C18
50V
0.1μF
C21
50V
0.1μF
R35
0.125W
270k
Q7A
TPCS8302
CN204
B4B-EH-Y
SW+12V
GND
GND
SW+5V
Not used
L621
LGCZ-2
D511
1SS133
R28
0.125W
22
C30
25V
0.047μF
C20
25V
0.047μF
R511
1/2W
0.15
C17
50V
1000pF
L512
18μH
2.0A
R31
0.125W
47k
Q7B
TPCS8302
Vboot
VB
VOUT
(11-14)
(18-21)
VDD
VCC
5.1V
OCL+
OCL-
R/C
IC4
MD1322N
amp OUT
Vref
amp-
S/S
G
G
P.GOND
C19
50V
0.1μF
R512
1/2W
0.15
C25
50V
0.022μF
R42
0.125W
10k
C621
35V
47μF
CN203
B4B-EH
SW+12V
GND
GND
SW+5V
to R7R
DRIVE ASSY
R45
0.125W
1M
C26
50V
1000pF
R36
0.125W
2.2K
R32
0.125W
27k
R44
0.125W
100k
R37
0.125W
220
C14
50V
0.01μF
C29
50V
0.047μF
R43
0.125W
10k
R38
0.125W
2.2K
C512
16V
680μF
Q10
DTC144E
L224
Not used
L222
100μH
0.9A
VIN
VOUT
6V
R58
0.125W
120k
R/C
amp-
IC1
MD5001T
ampout
OSC
S/S
GND
R18
0.125W
6.2k
R47
0.125W
1.0k
R29
0.125W
100k
C15
50V
1000pF
R19
0.125W
390
R49
0.125W
10k
Q221
2SA1020
L223
Not used
R33
0.125W
10k
R30
0.125W
4.7k
C223
Not used
C224
Not used
R48
0.125W
27k
R34
220
0.25W
C13
Not used
Q8
2SC4081
PC102B
TLP421F
Q12
2SC4081
Q11
DTC144E
R59
0.125W
9.1k
D221
D1NS4
<1N5819>
R20
0.125W
1K
C222
16V
470μF
Q6
2SC4081
Q5
DTC144E
C225
50V
10μF
R40
10k
0.125W
C16
50V
330pF
C23
50V
0.022μF
CN201
B15B-PH-K-S(LF)
PO ON
FL ON
FLDC-
FL-28V
FLDC+
GND
EV+37V
GND
EV+6V
GND
SW+12.5V
GND
SW+6V
GND
EV+15V
B 1/3 CN104
R911
6.8
T911
BD10-4A
D931
D1NL20U
<HER103>
L312
39μH
1.4A
C911
25V
100μF
R50
0.125W
270k
R55
0.125W
1.0k
C931
25V
100μF
R21
0.125W
3.9k
R26
0.125W
100k
C6
50V
1000pF
R22
0.125W
220
Q911
2SC3328
D912
1SS133
R54
0.125W
10k
R52
0.125W
220
C27
50V
0.022μF
D311
D2S4M
R24
0.125W
1K
C312
16V
470μF
R51
0.125W
27k
Q2
2SA1576A
R53
0.125W
1.2k
R57
0.125W
10k
Q1
2SC4081
C921
50V
10μF
L412
100μH
0.9A
D911
MTZJ15B
R56
0.125W
1.0k
C912
50V
0.01μF
D921
D1NL20U
<HER103>
D922
MTZJ2.4B
CN202
GND
SW+6V
GND
SW+2.5V
GND
SW+4V
SW+4V
SW+4V
HLW8S-2C7
C 4/4 CN4001
R15
0.125W
1.8k
R25
0.125W
100k
C7
50V
1000pF
R16
0.125W
390
D913
MTZJ13C
<MTZJ15B>
L313
39μH
1.4A
D411
D1NS4
<1N5819>
R17
0.125W
1K
C412
16V
120μF
L413
Not used
C413
Not used
C313
35V
47μF

4. MODEL SETTING

• The Setup is Necessary When :

a) When the MAIN Assy is replaced
b) When the JCKB Assy is replaced
c) When the MAIN Assy and JCKB Assy are replaced

Note : Make sure of setting the correct number.

• How to Setup the Model (RFXU type)

1) After power on, the following screen is displayed on TV monitor.
Press " 41 " for DVR-320 by using the remote control unit for service(GGF1381).

```
[ Recorder 's  Model  Setting]
  Input the number by using the remote for Service.

  > --

  Input  No.          Model
  [      41        :   DVR-320              ]
```

2) After 1), the following screen is displayed on TV monitor.
Press " 043 " by using the remote control unit for service.

```
[ Recorder 's  Type  Setting]
  Input the number by using the remote for Service.

  > ---                    (Type  --  ,   Region  No.  -)

  Input  No.          Type
  [      02        :   RD/RD   <South America>  ]
  [      03        :   RD/RA   <PX>             ]
  [      04        :   LF      <Taiwan>         ]
```

The setting complete when OSD is disappeared.

3) Unplug the power cable.

4) Reset the recorder to all its factory settings.
  1. Make sure that the recorder is on.
  2. Press and hold [STOP] and press [STANDBY/ON] key on the front panel.
  The recorder turns off with all settings reset.

5) Enter the Service Mode and then confirm the Model Name " DVR-320/LF ".
  1. Make sure that the recorder is on.
  2. Press [ESC] then [DISP] keys by using the remote control unit for Service.

```
DVR-320/LF
  VERSION   :  4.＊＊
  SYSCON    :  RELEASE_44
               Rev      :1.3599.2.2          $
 TUFLCON    :  4.04     MASK                  OK
    DRIVE   :  DVD-RW DVR-107R                OK
               1.06                           OK
               DADL000219WL                   OK

   DEVICE   :  PRISM-PLUS
   REGION   :  3
        C   :  ＊＊＊＊＊＊＊＊＊
   FLASH    :  32M
```

6) Escape the Service Mode.
  Press [ESC].

7) Download the latest firmware.
  At last, the download is necessary to update the firmware of each ASSY.
  Refer to how to download using disc described to page 70 on the service manual RRV2925.

Notes :

1) After the setting complete, you can NOT CLEAR the setting data.
Make sure the pressing number.

2) " NG " is appeared on TV when unsuitable number is pressed.
In such a case, please unplug the power cable and plug it again. Then restart the model setting.

• How to Setup the Model (RDXU/RD type)

1) After power on, the following screen is displayed on TV monitor.
   Press " 41 " for DVR-320 by using the remote control unit for service(GGF1381).

```
[ Recorder 's  Model  Setting]
  Input the number by using the remote for Service.

  > --

  Input  No.        Model
  [     41      :   DVR-320          ]
```

2) After 1), the following screen is displayed on TV monitor.
   Press " 024 " by using the remote control unit for service.

```
[ Recorder 's  Type  Setting]
  Input the number by using the remote for Service.

  > ---                   (Type  -- ,   Region  No.  -)

  Input  No.        Type
  [     02      :   RD/RD    <South America>   ]
  [     03      :   RD/RA    <PX>              ]
  [     04      :   LF       <Taiwan>          ]
```

The setting complete when OSD is disappeared.

3) Unplug the power cable.

4) Reset the recorder to all its factory settings.
   1. Make sure that the recorder is on.
   2. Press and hold [STOP] and press [STANDBY/ON] key on the front panel.
      The recorder turns off with all settings reset.

5) Enter the Service Mode and then confirm the Model Name " DVR-320/RD/RD ".
   1. Make sure that the recorder is on.
   2. Press [ESC] then [DISP] keys by using the remote control unit for Service.

```
DVR-320/RD/RD
  VERSION  :  4.**
  SYSCON   :  RELEASE_44
              Rev     :1.3599.2.2          $
 TUFLCON   :  4.04     MASK                    OK
    DRIVE  :  DVD-RW DVR-107R                  OK
              1.06                             OK
              DADL000219WL                     OK

   DEVICE  :  PRISM-PLUS
   REGION  :  4
         C :  *********
   FLASH   :  32M
```

6) Escape the Service Mode.
   Press [ESC].

7) Download the latest firmware.
   At last, the download is necessary to update the firmware of each ASSY.
   Refer to how to download using disc described to page 70 on the service manual RRV2925.

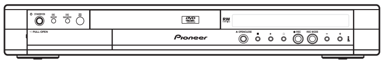
Notes :

1) After the setting complete, you can NOT CLEAR the setting data.
   Make sure the pressing number.

2) " NG " is appeared on TV when unsuitable number is pressed.
   In such a case, please unplug the power cable and plug it again. Then restart the model setting.

Pioneer sound.vision.soul

Service Manual


DVR-220-S

ORDER NO.
RRV2925

DVD RECORDER

DVR-220-S
DVR-225-S

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Region No.	**Serial No.** Please confirm 3rd & 4th alphabetical letters.
DVR-220-S	KU/CA	AC120V	1	
DVR-220-S	KUXU/CA	AC120V	1	&&PG######$$
DVR-220-S	KUXQ/CA	AC120V	1	&&CP######$$
DVR-225-S	KUXU/CA	AC120V	1	&&PG######$$

- **When servicing this model, some service procedures may reset the settings that customer set (*) to the factory default settings. Make sure to explain this to the customer.**

(*) : Initial Setup (Clock Setting, Remote Control Set, Channel settings, Video Out settings, Audio In settings, Audio Out settings, Language settings)

Refer to the chapter 12 of the Operating Instructions for more details.

For details, refer to "Important symbols for good services" .

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©**PIONEER CORPORATION 2004**

T-ZZV APR. 2004 printed in Japan

SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 – Proposition 65

NOTICE

(FOR CANADIAN MODEL ONLY)

Fuse symbols (fast operating fuse) and/or (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE

(POUR MODÈLE CANADIEN SEULEMENT)

Les symboles de fusible (fusible de type rapide) et/ou (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

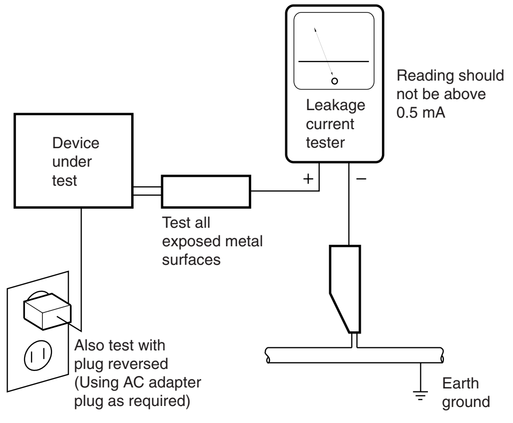
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60 Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5 mA.


Reading should not be above 0.5 mA
Leakage current tester
Device under test
+
−
Test all exposed metal surfaces
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

IMPORTANT

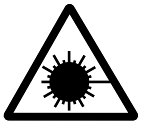
THIS PIONEER APPARATUS CONTAINS LASER OF CLASS 1.
SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

LASER DIODE CHARACTERISTICS

MAXIMUM OUTPUT POWER : 50 mw
WAVELENGTH : 658 nm

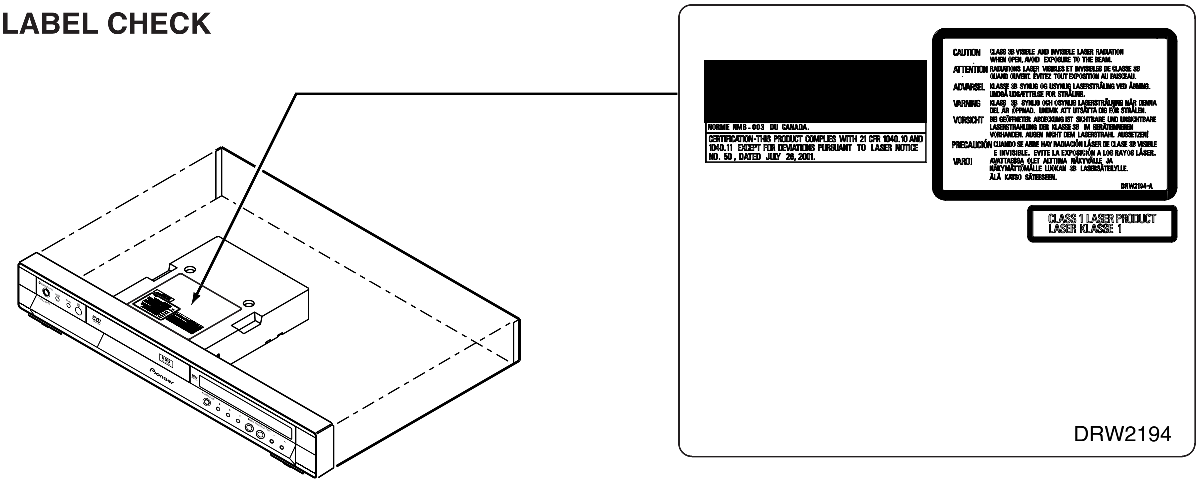
WARNING!

DEVICE INCLUDES LASER DIODE WHICH EMITS INVISIBLE INFRARED RADIATION WHICH IS DANGEROUS TO EYES. THERE IS A WARNING SIGN ACCORDING TO PICTURE 1 INSIDE THE DEVICE CLOSE TO THE LASER DIODE.



LASER
Picture 1
Warning sign for laser radiation

■ LABEL CHECK



[redacted]

NORME NMB - 003 DU CANADA.

CERTIFICATION-THIS PRODUCT COMPLIES WITH 21 CFR 1040.10 AND 1040.11 EXCEPT FOR DEVIATIONS PURSUANT TO LASER NOTICE NO. 50 , DATED JULY 26, 2001.

CAUTION	CLASS 3B VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN, AVOID EXPOSURE TO THE BEAM.
ATTENTION	RADIATIONS LASER VISIBLES ET INVISIBLES DE CLASSE 3B QUAND OUVERT. ÉVITEZ TOUT EXPOSITION AU FAISCEAU.
ADVARSEL	KLASSE 3B SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARNING	KLASS 3B SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. UNDVIK ATT UTSÄTTA DIG FÖR STRÅLEN.
VORSICHT	BEI GEÖFFNETER ABDECKUNG IST SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG DER KLASSE 3B IM GERÄTEINNEREN VORHANDEN. AUGEN NICHT DEM LASERSTRAHL AUSSETZEN!
PRECAUCIÓN	CUANDO SE ABRE HAY RADIACIÓN LÁSER DE CLASE 3B VISIBLE E INVISIBLE. EVITE LA EXPOSICIÓN A LOS RAYOS LÁSER.
VARO!	AVATTAESSA OLET ALTTIINA NÄKYVÄLLE JA NÄKYMÄTTÖMÄLLE LUOKAN 3B LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

DRW2194-A

CLASS 1 LASER PRODUCT
LASER KLASSE 1

DRW2194

Additional Laser Caution

1. The ON/OFF(ON:low level,OFF:high level) status of the CLAMP signals for detecting the loading state are detected by the drive CPUs, and the design prevents laser diode oscillation when the CLAMP signal turns OFF.
   In normal operation, if no disc is clamped, the laser diode oscillation is disabled.
   However, the interlock does not always operate in the test mode.

2. When the cover is opened, close viewing of the objective lens with the naked eye will cause exposure to a Class 3A laser beam.

[Important symbols for good services]

In this manual, the symbols shown-below indicate that adjustments, settings or cleaning should be made securely.
When you find the procedures bearing any of the symbols, be sure to fulfill them:

1. Product safety

You should conform to the regulations governing the product (safety, radio and noise, and other regulations), and should keep the safety during servicing by following the safety instructions described in this manual.

2. Adjustments

To keep the original performances of the product, optimum adjustments or specification confirmation is indispensable. In accordance with the procedures or instructions described in this manual, adjustments should be performed.

3. Cleaning

For optical pickups, tape-deck heads, lenses and mirrors used in projection monitors, and other parts requiring cleaning, proper cleaning should be performed to restore their performances.

4. Shipping mode and shipping screws

To protect the product from damages or failures that may be caused during transit, the shipping mode should be set or the shipping screws should be installed before shipping out in accordance with this manual, if necessary.

5. Lubricants, glues, and replacement parts

Appropriately applying grease or glue can maintain the product performances. But improper lubrication or applying glue may lead to failures or troubles in the product. By following the instructions in this manual, be sure to apply the prescribed grease or glue to proper portions by the appropriate amount.For replacement parts or tools, the prescribed ones should be used.

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1. SPECIFICATIONS

General

System	DVD-Video, DVD-R/RW, Video-CD, CD, CD-R/RW (WMA, MP3, JPEG. CD-DA)
Power requirements	120 V, 60 Hz
Power Consumption	
DVR-220	23 W
Power consumption in standby mode	0.42W (Front Panel Display : off)
Weight	8 lb 13 oz / 4.0 kg
Dimensions	420 (W) x 59 (H) x 339 (D) mm
Operating temperature	+5°C to +35°C
Operating humidity	5% to 85% (no condensation)
TV format	NTSC

Recording

Recording format	DVD Video Recording DVD-VIDEO

Recordable discs

DVD-RW (DVD Re-recordable disc)
DVD-R (DVD Recordable disc)

Video recording format

Sampling frequency	13.5MHz
Compression format	MPEG

Audio recording format

Sampling frequency	48kHz
Compression format	Dolby Digital or Linear PCM (uncompressed)

Recording time

Fine (FINE)	Approx. 1 hour
Standard Play (SP)	Approx. 2 hours
Long Play (LP)	Approx. 4 hours
Extended Play (EP)	Approx. 6 hours
Manual Mode (MN)	Approx. 1–6 hours

Tuner

Receivable channels

VHF	2–13ch
UHF	14–69ch
CATV	C1–C125ch

Timer

Programs	1 month/32 programs
Clock	Quartz lock (12-hour digital display)
Power off memory	Approx. 5 years (after manufacture)

Input/Output

VHF/UHF antenna input/output terminal	VHF/UHF set 75Ω (F-shape connector)
Video input	Input 1, 3 (rear), 2 (front)
Input level	1Vp-p (75 Ω)
Jacks	RCA jack
Video output	Output 1,2
Output level	1Vp-p (75 Ω)
Jacks	RCA jack
S-Video input	Input 1, 3 (rear), 2 (front)
Y (luminance) - Input level	1Vp-p (75 Ω)
C (color) - Input level	286 mVp-p (75Ω)
Jacks	4pin mini DIN
S-Video output	Output 1,2
Y (luminance) - Output level	1Vp-p (75 Ω)
C (color) - Output level	286 mVp-p (75Ω)
Jacks	4pin mini DIN
Component video output	
Output level	Y: 1.0 Vp-p (75Ω) PB, PR: 0.7 Vp-p (75Ω)
Jacks	RCA jacks
Audio input	Input 1, 3 (rear), 2 (front) L/R
Input level	
During audio input	2V rms (Input impedance: more than 22 kΩ)
Jacks	RCA jacks
Audio output	Output 1,2 L/R
During audio output	2V rms (Output impedance: less than 1.5 kΩ)
Jacks	RCA jacks
Control input	Mini jack

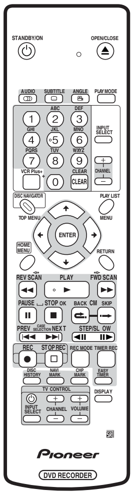
Supplied accessories

Remote control	1
Dry cell batteries (AA/R6P)	2
Audio / Video cable (red/white/yellow)	1
RF antenna cable	1
Power cable	1
Operating Instructions	1
Warranty card	1

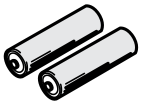
Note: The specifications and design of this product are subject to change without notice, due to improvement.

● Accessories

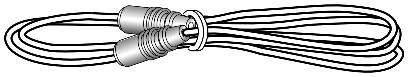
- Remote control ×1
  (VXX2928)


STANDBY/ON
OPEN/CLOSE
AUDIO
SUBTITLE
ANGLE
PLAY MODE
1
ABC 2
DEF 3
GHI 4
JKL 5
MNO 6
PQRS 7
TUV 8
WXYZ 9
VCR Plus+
0
CLEAR
INPUT SELECT
CHANNEL
DISC NAVIGATOR
PLAY LIST
TOP MENU
MENU
ENTER
HOME MENU
RETURN
REV SCAN
PLAY
FWD SCAN
PAUSE
STOP OK
BACK CM SKIP
PREV
CASE SELECTION
NEXT
STEP/SLOW
REC
STOP REC
REC MODE
TIMER REC
DISC HISTORY
NAVI MARK
CHP MARK
EASY TIMER
TV CONTROL
INPUT SELECT
CHANNEL
VOLUME
DISPLAY
Pioneer
DVD RECORDER

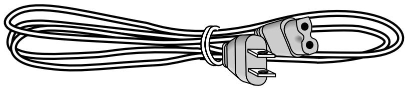
- Dry cell batteries ×2
  (AA/R6P)



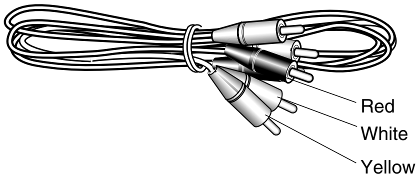
- RF antenna cable ×1
  (VDE1025 :)



- Power cable ×1
  (ADG7021 : DVR-220-S/KU/CA)
  (ADG7075 : DVR-220-S/KUXU/CA and /KUXQ/CA types,
  DVR-225-S/KUXU/CA)



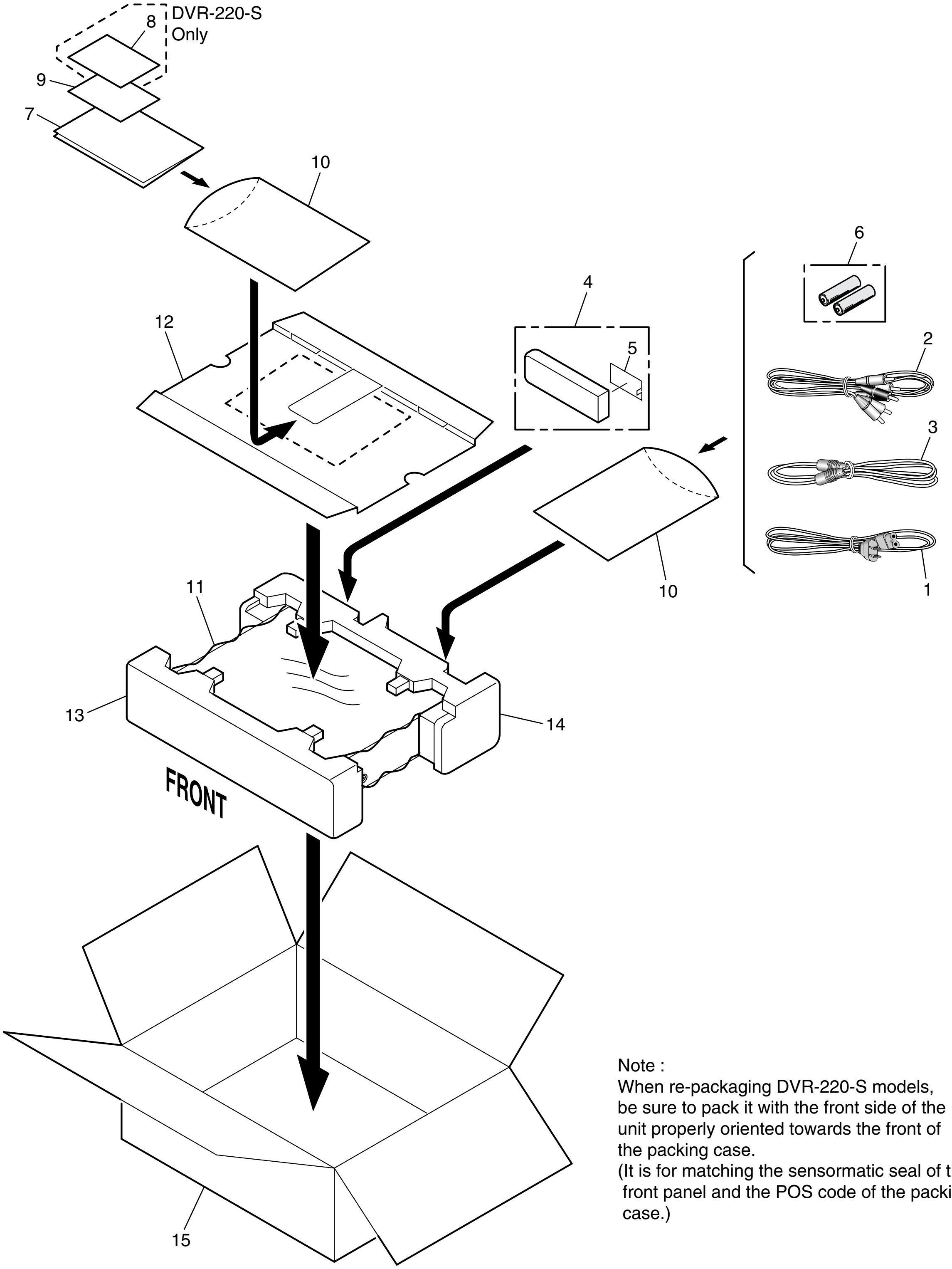
- Audio / Video cable(L=1.5m) ×1
  (red/white/yellow)
  (XDE3049 : DVR-220-S/KU/CA)
  (VDE1077 : DVR-220-S/KUXU/CA and /KUXQ/CA types,
  DVR-225-S/KUXU/CA)


Red
White
Yellow

2. EXPLODED VIEWS AND PARTS LIST

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Screws adjacent to ▼ mark on product are used for disassembly.*
- *For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions, apply as you think it appropriate.)*

2.1 PACKING



Note :
When re-packaging DVR-220-S models,
be sure to pack it with the front side of the
unit properly oriented towards the front of
the packing case.
(It is for matching the sensormatic seal of the
front panel and the POS code of the packing
case.)

PACKING parts List

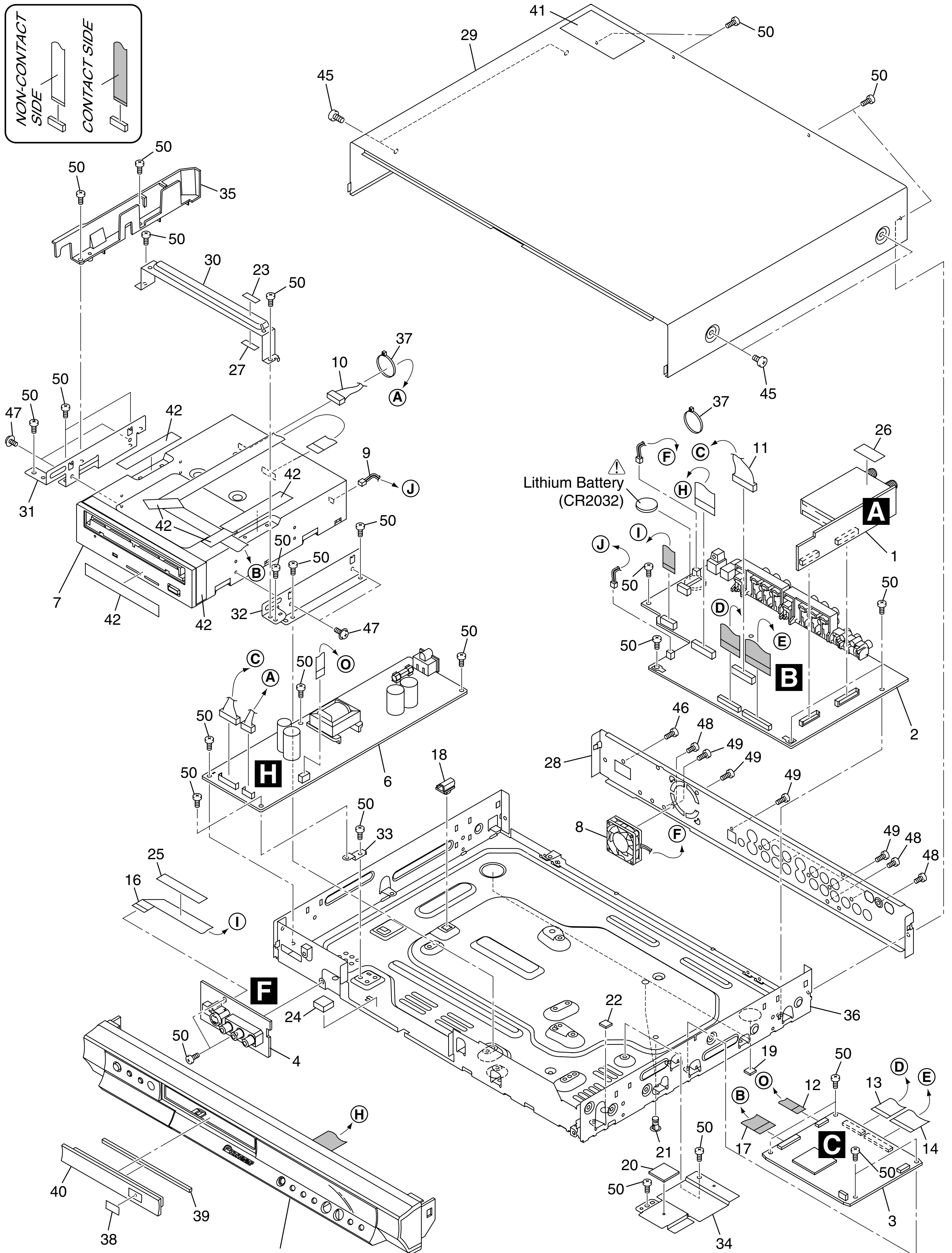
Mark	No.	Description	Part No.
⚠	1	Power Cable	See Contrast table (2)
	2	Audio / Video Cable	See Contrast table (2)
	3	RF Antenna Cable	VDE1025
	4	Remote Control	VXX2928
	5	Battery Cover	AZN7933
NSP	6	Dry Cell Battery (R6P, AA)	See Contrast table (2)
	7	Operating Instructions (English)	See Contrast table (2)
NSP	8	Leaflet	See Contrast table (2)
NSP	9	Warranty Card	ARY7045
	10	Polyethylene Bag	VHL1051
	11	Mirror Sheet	VHL1006
	12	IM Holder	See Contrast table (2)
	13	Front Pad	See Contrast table (2)
	14	Rear Pad	See Contrast table (2)
	15	Packing Case	See Contrast table (2)

(2) CONTRAST TABLE

DVR-220-S/KU/CA, KUXU/CA, /KUXQ/CA and DVR-225-S/KUXU/CA are constructed the same except for the following :

Mark	No.	Symbol and Description	DVR-220-S/ KU/CA	DVR-220-S/ KUXU/CA	DVR-220-S/ KUXQ/CA	DVR-225-S/ KUXU/CA
⚠	1	Power Cable	ADG7021	ADG7075	ADG7075	ADG7075
	2	Audio / Video Cable	XDE3049	VDE1077	VDE1077	VDE1077
NSP	6	Dry Cell Battery (R6P, AA)	VEM1031	VEM1030	VEM1030	VEM1030
	7	Operating Instructions (English)	VRB1333	VRB1333	VRB1333	VRB1344
NSP	8	Leaflet	VRY1147	VRY1147	VRY1147	Not used
	12	IM Holder	VHC1116	VHC1115	VHC1115	VHC1115
	13	Front Pad	VHA1368	VHA1364	VHA1364	VHA1364
	14	Rear Pad	VHA1369	VHA1365	VHA1365	VHA1365
	15	Packing Case	VHG2504	VHG2501	VHG2553	VHG2527

2.2 EXTERIOR


NON-CONTACT SIDE
CONTACT SIDE
41
29
50
45
50
50
50
35
50
30
23
50
37
10
27
45
A
50
50
47
42
37
26
11
F
C
9
J
Lithium Battery (CR2032)
H
A
31
42
42
C
I
7
B
50
50
50
J
1
50
50
42
42
32
47
D
E
50
50
C
A
50
O
50
B
2
46
48
49
49
50
H
28
18
49
50
6
50
8
F
33
49
48
25
48
16
I
F
22
36
24
50
4
19
50
13
D
E
O
12
B
H
17
C
14
50
21
50
20
50
40
39
38
34
3

Refer to
"2.3 FRONT PANEL SECTION".

EXTERIOR parts List

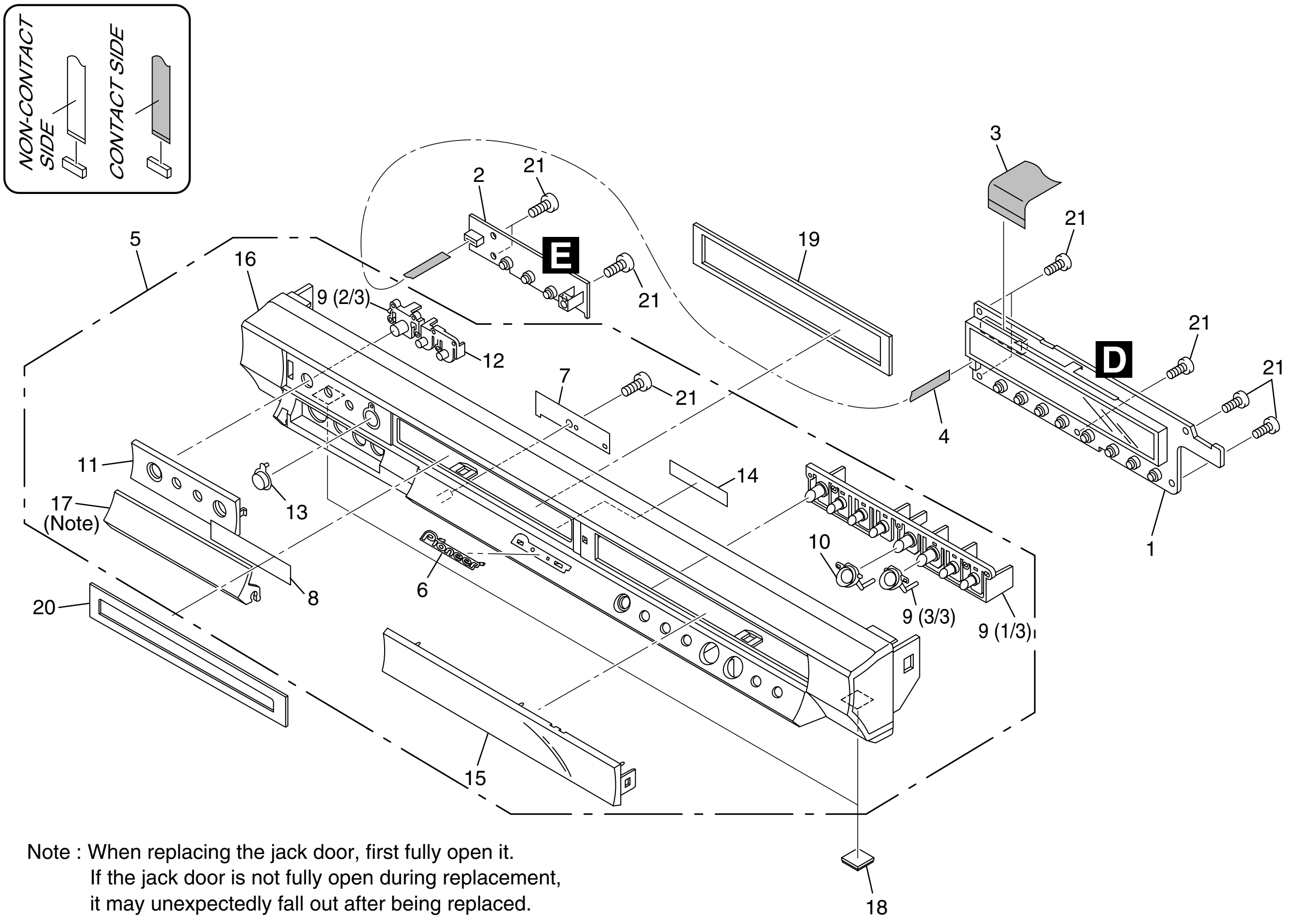
Mark	No.	Description	Part No.
	1	TUNB Assy	VWV2010
	2	JCKB Assy	VWV2027
	3	MAIN Assy	VWV2007
	4	FRJB Assy	VWV2004
	5	• • • • •	
⚠	6	POWER SUPPLY Unit	VWR1378
	7	DRIVE Assy R7R (for Service)	VXX2926
	8	DC Fan Motor	VXM1115
	9	Connector Assy (2P)	PF02PP-C07
	10	Connector Assy (4P)	PF04EE-S22
	11	Connector Assy (13P)	PF13PP-D47
	12	Flexible Cable (8P)	See Contrast table (2)
	13	Flexible Cable (24P)	See Contrast table (2)
	14	Flexible Cable (32P)	See Contrast table (2)
	15	• • • • •	
	16	Flexible Cable (13P)	See Contrast table (2)
	17	Flexible Cable (40P)	See Contrast table (2)
NSP	18	P. Plate Holder	PNY-405
	19	Rubber Foot	VEB1349
	20	Radiation Sheet	VEB1360
NSP	21	PC Support	VEC1749
	22	Heatsink Cushion	VEC2363
	23	Gasket Sheet	VEC2394
	24	Spacer	VEC2413
	25	FFC Protector	VEC2436
	26	Gasket 20 x 8T	VEC2437
	27	Gasket Sheet 2	VEC2440
	28	Rear Panel	See Contrast table (2)
	29	Bonnet Case S	VXX2925
NSP	30	Bonnet Angle	VNE2335
NSP	31	Writer Stay L	VNE2336
NSP	32	Writer Stay R	VNE2337
NSP	33	PCB Base	VNE2339
NSP	34	Heatsink	VNH1070
	35	SYPS Cover	VNK5426
NSP	36	Base Chassis Assy	VXA2681
NSP	37	Binder (BK-1)	ZCA-BK1
	38	DVD RW Badge	VAM1139
	39	Tray Sheet B	VEC2409
	40	Tray Panel	VNK5444
	41	Bonnet Label	VRW2104
NSP	42	Tape	ZTA-156A-19
	43	• • • • •	
	44	• • • • •	
	45	Screw	BCZ40P060FNI
	46	Screw	PBZ30P080FTC
	47	Screw	AMZ30P060FTC
	48	Screw	BBZ30P040FTC
	49	Screw	BPZ30P080FTC
	50	Screw	BBZ30P060FTC

(2) CONTRAST TABLE

DVR-220-S/KU/CA, KUXU/CA, KUXQ/CA and DVR-225-S/KUXU/CA are constructed the same except for the following :

Mark	No.	Symbol and Description	DVR-220-S/ KU/CA	DVR-220-S/ KUXU/CA	DVR-220-S/ KUXQ/CA	DVR-225-S/ KUXU/CA
	12	Flexible Cable (8P)	VDA2011	VDA1997	VDA1997	VDA1997
	13	Flexible Cable (24P)	VDA2012	VDA1998	VDA1998	VDA1998
	14	Flexible Cable (32P)	VDA2013	VDA1999	VDA1999	VDA1999
	16	Flexible Cable (13P)	VDA2015	VDA2001	VDA2001	VDA2001
	17	Flexible Cable (40P)	VDA2020	VDA2006	VDA2006	VDA2006
	28	Rear Panel	VNA2681	VNA2681	VNA2681	VNA2719

2.3 FRONT PANEL


NON-CONTACT SIDE
CONTACT SIDE
3
21
2
21
5
16
9 (2/3)
E
21
19
21
12
D
21
7
21
21
4
11
13
14
17
(Note)
10
1
8
6
20
9 (3/3)
9 (1/3)
15
18

Note : When replacing the jack door, first fully open it.
If the jack door is not fully open during replacement,
it may unexpectedly fall out after being replaced.

FRONT PANEL parts List

Mark	No.	Description	Part No.
	1	FLKY Assy	VWG2489
	2	KIRB Assy	VWG2490
	3	Flexible Cable (19P)	See Contrast table (2)
	4	Flexible Cable (7P)	See Contrast table (2)
	5	Front Panel Assy	See Contrast table (2)
	6	Pioneer Name Plate	VAM1146
	7	Door Spring	VBK1151
NSP	8	Mirror Sheet	VHL1082
NSP	9	Main Key	VNK5420
NSP	10	REC Ring	VNK5425
NSP	11	Sub Panel	VNK5442
NSP	12	Power Key	VNK5539
NSP	13	IR Window	VNK5446
NSP	14	Sensormatic Seal	See Contrast table (2)
NSP	15	FL Lens	See Contrast table (2)
NSP	16	Front Panel	VNK5492
	17	Jack Door	VNK5494
	18	Rubber Foot	VEB1349
	19	Drive Sheet	VEC2345
	20	Panel Sheet	VEC2446
	21	Screw	BPZ30P080FTC

(2) CONTRAST TABLE

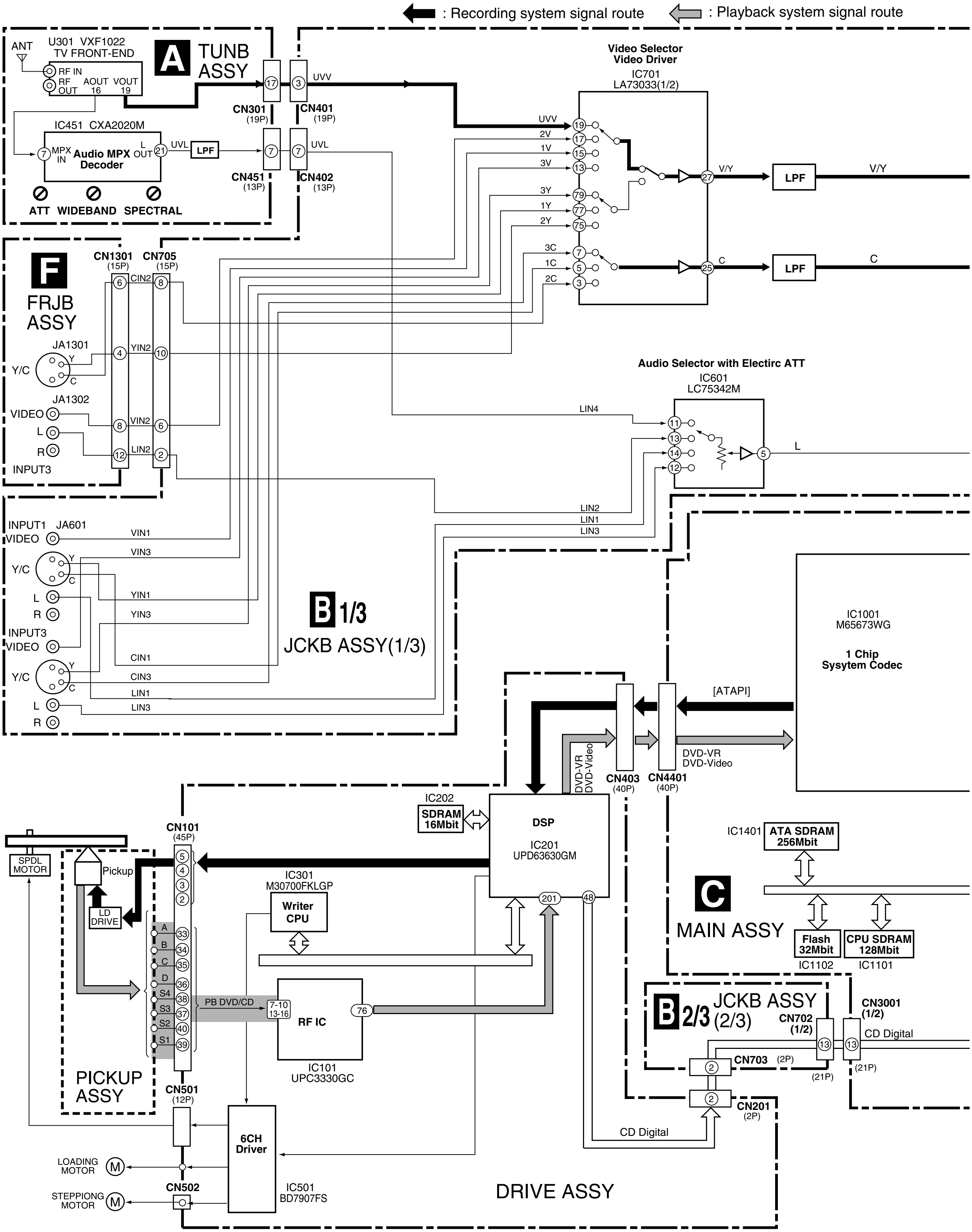
DVR-220-S/KU/CA, KUXU/CA, KUXQ/CA and DVR-225-S/KUXU/CA are constructed the same except for the following :

Mark	No.	Symbol and Description	DVR-220-S/ KU/CA	DVR-220-S/ KUXU/CA	DVR-220-S/ KUXQ/CA	DVR-225-S/ KUXU/CA
	3	Flexible Cable (19P)	VDA2016	VDA2002	VDA2002	VDA2002
	4	Flexible Cable (7P)	VDA2019	VDA2005	VDA2005	VDA2005
	5	Front Panel Assy	VXA2643	VXA2643	VXA2643	VXA2668
NSP	14	Sensormatic Seal	VAN1004	VAN1004	VAN1004	Not used
NSP	15	FL Lens	VNK5484	VNK5484	VNK5484	VNK5602

3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

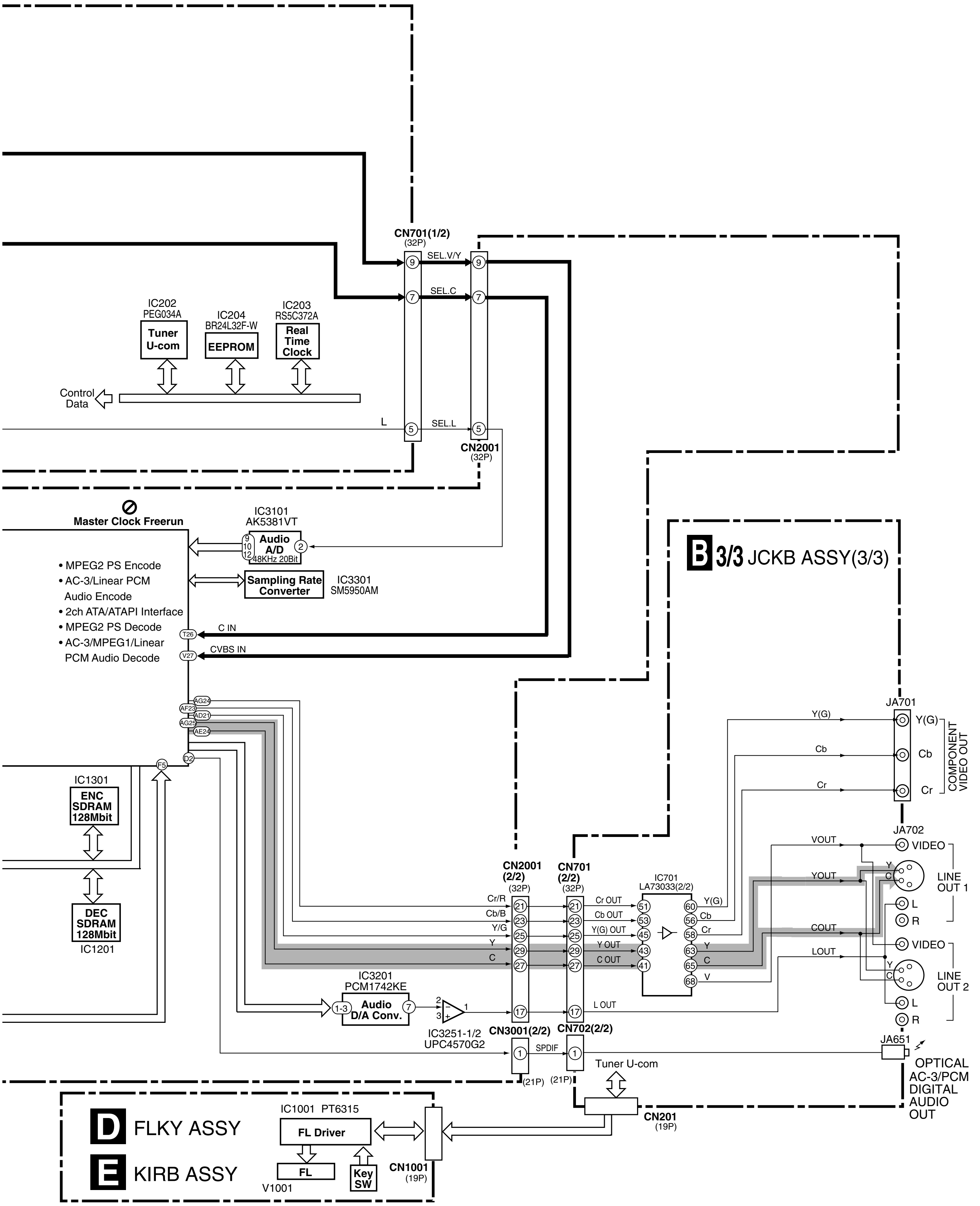
3.1 BLOCK DIAGRAM

3.1.1 OVERALL BLOCK DIAGRAM

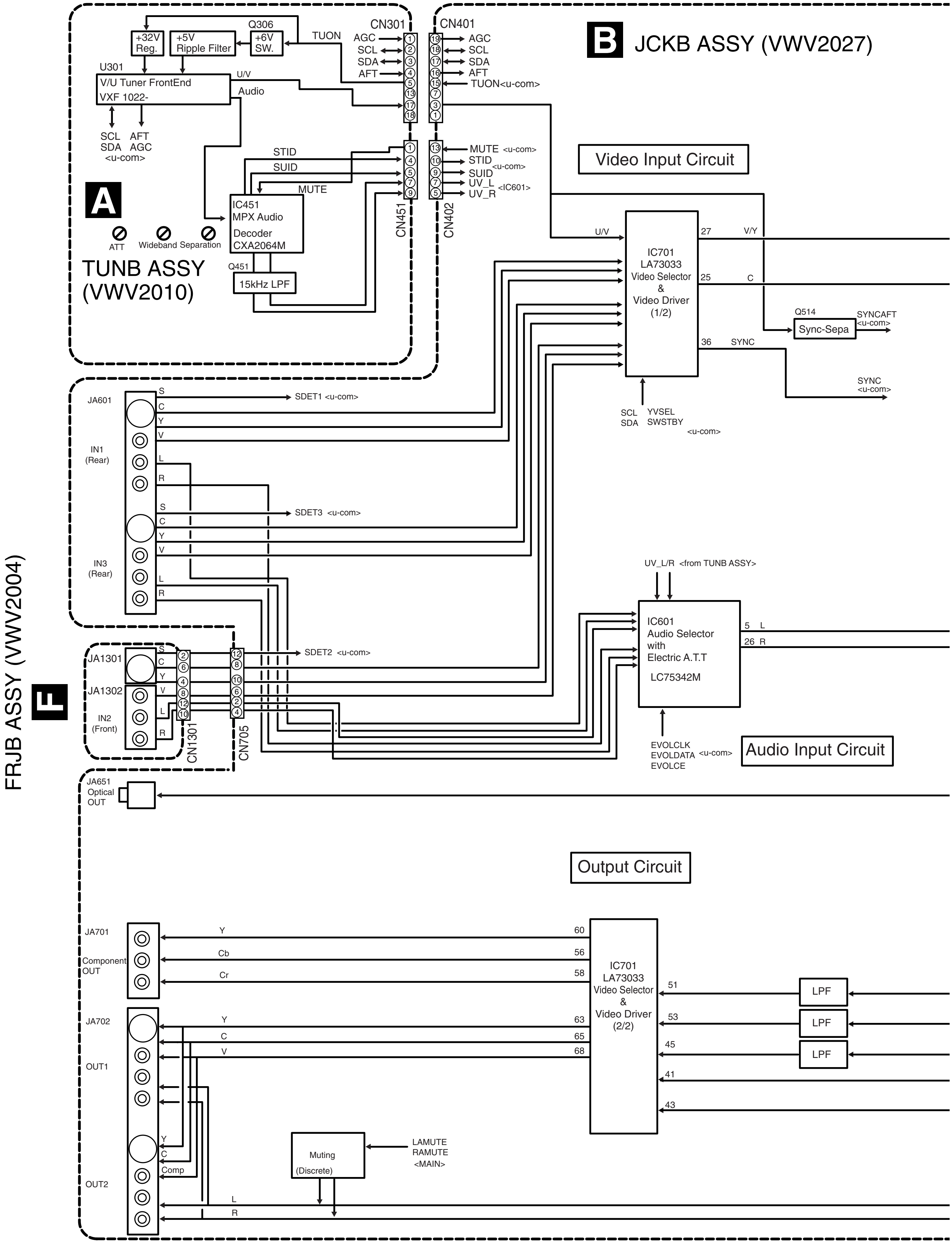


: Recording system signal route
: Playback system signal route
ANT
U301 VXF1022
TV FRONT-END
RF IN
RF OUT
AOUT 16
VOUT 19
A
TUNB ASSY
IC451 CXA2020M
MPX IN
Audio MPX Decoder
L OUT
UVL
LPF
ATT
WIDEBAND
SPECTRAL
CN301 (19P)
CN401 (19P)
CN451 (13P)
CN402 (13P)
UVV
Video Selector
Video Driver
IC701
LA73033(1/2)
2V
1V
3V
3Y
1Y
2Y
3C
1C
2C
V/Y
C
F
FRJB ASSY
CN1301 (15P)
CN705 (15P)
CIN2
YIN2
VIN2
LIN2
JA1301
Y/C
Y
JA1302
VIDEO
L
R
INPUT3
Audio Selector with Electirc ATT
IC601
LC75342M
LIN4
LIN1
LIN3
INPUT1 JA601
VIN1
VIN3
YIN1
YIN3
CIN1
CIN3
B 1/3
JCKB ASSY(1/3)
IC1001
M65673WG
1 Chip
Sysytem Codec
[ATAPI]
DVD-VR
DVD-Video
CN403 (40P)
CN4401 (40P)
IC202
SDRAM 16Mbit
DSP
IC201
UPD63630GM
201
48
IC1401
ATA SDRAM 256Mbit
C
MAIN ASSY
Flash 32Mbit
IC1102
CPU SDRAM 128Mbit
IC1101
SPDL MOTOR
Pickup
LD DRIVE
CN101 (45P)
A
B
C
D
S4
S3
S2
S1
IC301
M30700FKLGP
Writer CPU
PB DVD/CD
7-10 13-16
76
RF IC
IC101
UPC3330GC
PICKUP ASSY
CN501 (12P)
6CH Driver
IC501
BD7907FS
LOADING MOTOR
STEPPING MOTOR
CN502
B 2/3
JCKB ASSY (2/3)
CN702 (1/2)
(21P)
CN3001 (1/2)
(21P)
CD Digital
CN703 (2P)
CN201 (2P)
DRIVE ASSY

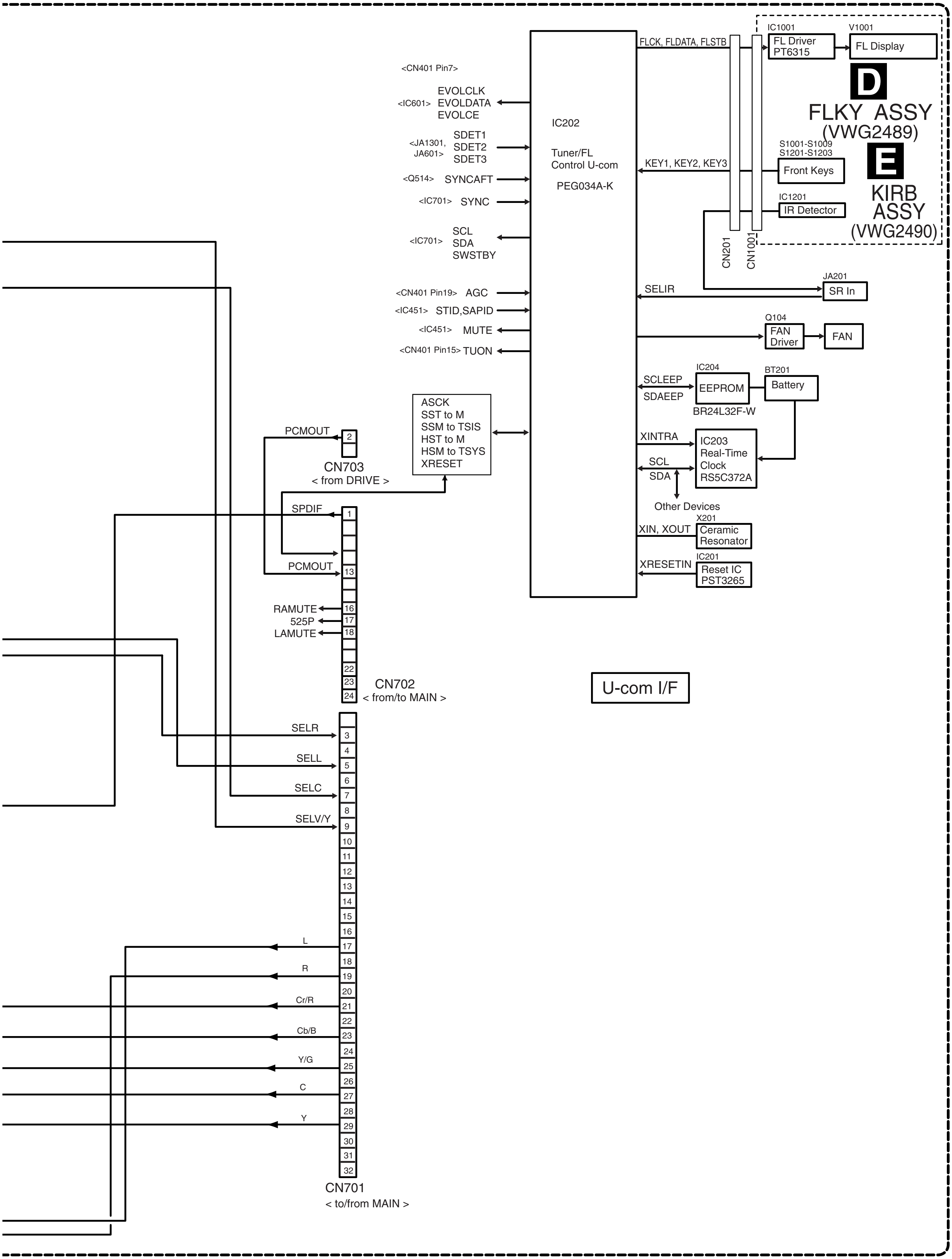
• R ch is same as L ch.


CN701(1/2)
(32P)
SEL.V/Y
SEL.C
SEL.L
L
CN2001
(32P)
IC202
PEG034A
Tuner
U-com
IC204
BR24L32F-W
EEPROM
IC203
RS5C372A
Real
Time
Clock
Control
Data
Master Clock Freerun
IC3101
AK5381VT
Audio
A/D
48KHz 20Bit
IC3301
SM5950AM
Sampling Rate
Converter
• MPEG2 PS Encode
• AC-3/Linear PCM
Audio Encode
• 2ch ATA/ATAPI Interface
• MPEG2 PS Decode
• AC-3/MPEG1/Linear
PCM Audio Decode
T26
C IN
V27
CVBS IN
AG24
AF23
AD21
AG25
AE24
D2
F5
IC1301
ENC
SDRAM
128Mbit
DEC
SDRAM
128Mbit
IC1201
B 3/3 JCKB ASSY(3/3)
JA701
Y(G)
Cb
Cr
COMPONENT
VIDEO OUT
JA702
VIDEO
VOUT
YOUT
COUT
LOUT
LINE
OUT 1
LINE
OUT 2
L
R
CN2001
(2/2)
(32P)
CN701
(2/2)
(32P)
Cr/R
Cb/B
Y/G
Y
C
Cr OUT
Cb OUT
Y(G) OUT
Y OUT
C OUT
L OUT
IC701
LA73033(2/2)
Y(G)
Cb
Cr
Y
C
V
IC3201
PCM1742KE
Audio
D/A Conv.
IC3251-1/2
UPC4570G2
CN3001(2/2)
CN702(2/2)
SPDIF
(21P)
(21P)
Tuner U-com
JA651
OPTICAL
AC-3/PCM
DIGITAL
AUDIO
OUT
CN201
(19P)
D FLKY ASSY
E KIRB ASSY
IC1001 PT6315
FL Driver
FL
V1001
Key
SW
CN1001
(19P)

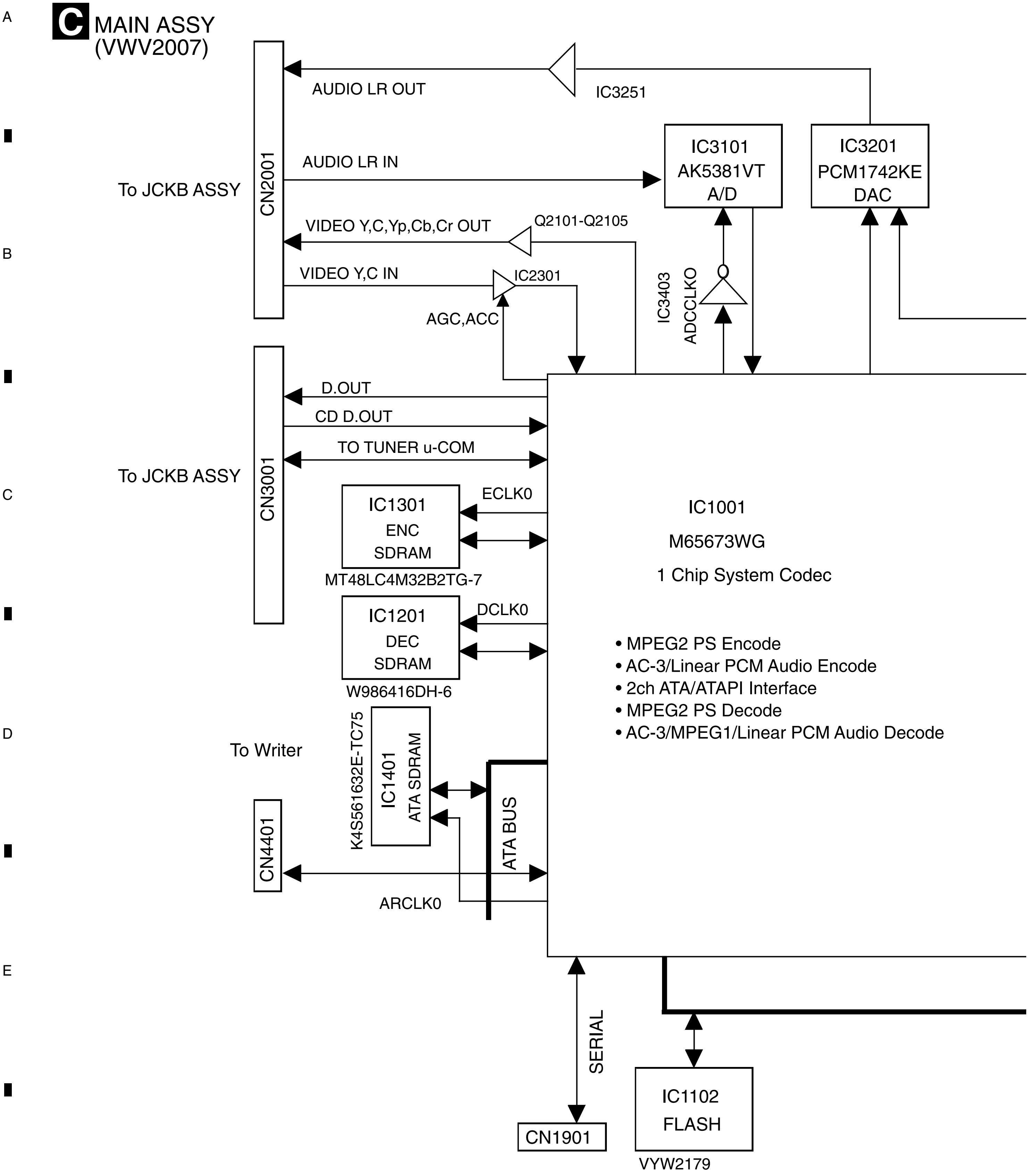
3.1.2 TUNB and FRJB ASSYS BLOCK DIAGRAM

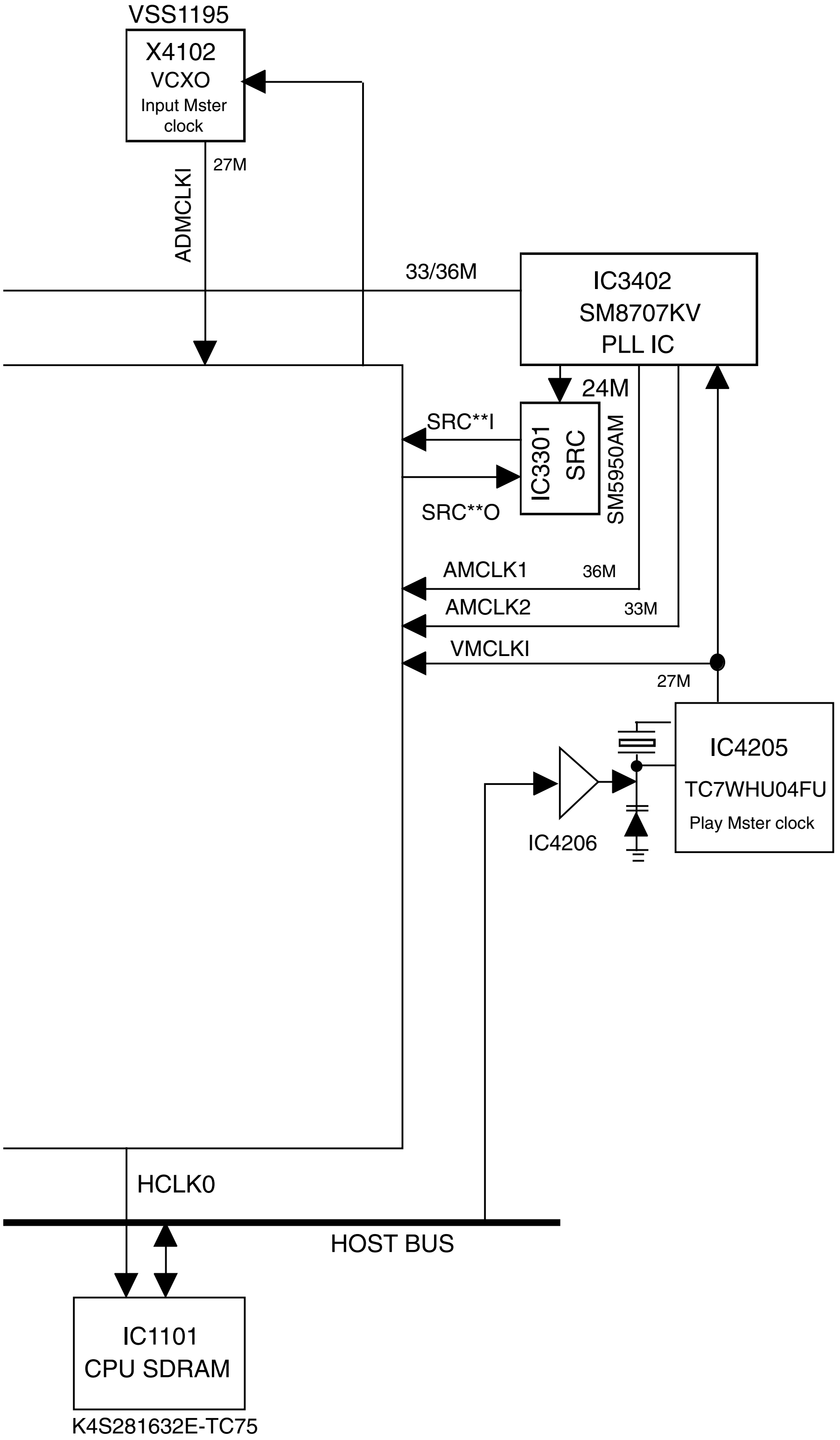


A
TUNB ASSY (VWV2010)
+32V Reg.
+5V Ripple Filter
Q306
+6V SW.
TUON
U301
V/U Tuner FrontEnd
VXF 1022-
U/V
Audio
SCL SDA <u-com>
AFT AGC
CN301
AGC
SCL
SDA
AFT
STID
SUID
MUTE
IC451 MPX Audio Decoder CXA2064M
Q451
15kHz LPF
ATT
Wideband
Separation
CN451
CN402
CN401
B
JCKB ASSY (VWV2027)
AGC
SCL
SDA
AFT
TUON<u-com>
MUTE <u-com>
STID <u-com>
SUID
UV_L <IC601>
UV_R
Video Input Circuit
U/V
IC701 LA73033 Video Selector & Video Driver (1/2)
27 V/Y
25 C
36 SYNC
Q514
Sync-Sepa
SYNCAFT <u-com>
SYNC <u-com>
SCL SDA
YVSEL SWSTBY <u-com>
JA601
IN1 (Rear)
S C Y V L R
SDET1 <u-com>
SDET3 <u-com>
IN3 (Rear)
UV_L/R <from TUNB ASSY>
IC601 Audio Selector with Electric A.T.T LC75342M
5 L
26 R
EVOLCLK EVOLDATA EVOLCE <u-com>
Audio Input Circuit
F
FRJB ASSY (VWV2004)
JA1301
JA1302
IN2 (Front)
CN1301
CN705
SDET2 <u-com>
JA651 Optical OUT
Output Circuit
JA701
Component OUT
Y Cb Cr
60 56 58
IC701 LA73033 Video Selector & Video Driver (2/2)
51 53 45 41 43
LPF
LPF
LPF
JA702
OUT1
Y C V
63 65 68
OUT2
Y C Comp
Muting (Discrete)
LAMUTE RAMUTE <MAIN>
L
R

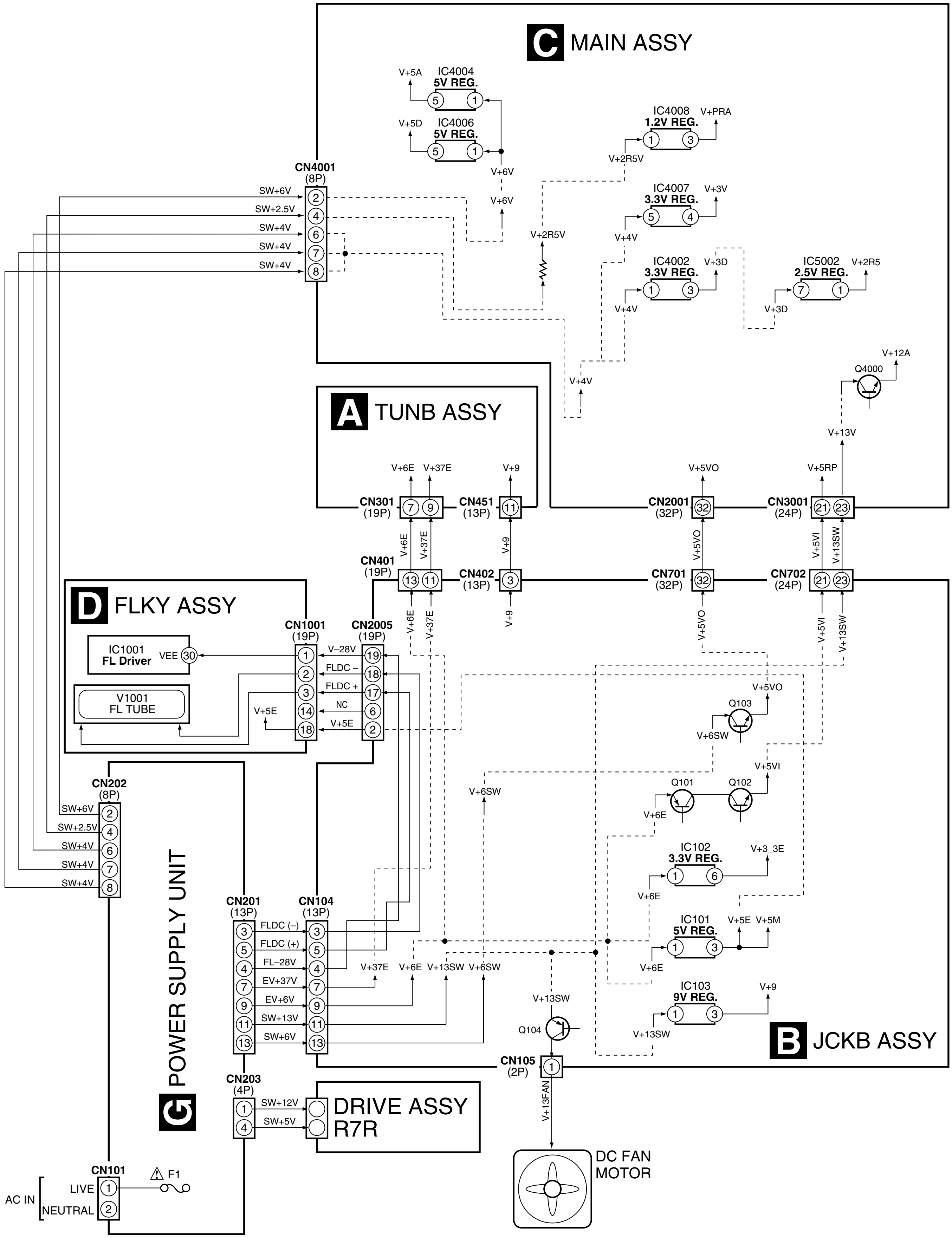

IC1001
FL Driver
PT6315
V1001
FL Display
FLCK, FLDATA, FLSTB
D
FLKY ASSY
(VWG2489)
<CN401 Pin7>
EVOLCLK
<IC601> EVOLDATA
EVOLCE
IC202
Tuner/FL
Control U-com
PEG034A-K
<JA1301, JA601>
SDET1
SDET2
SDET3
<Q514> SYNCAFT
<IC701> SYNC
<IC701>
SCL
SDA
SWSTBY
S1001-S1009
S1201-S1203
Front Keys
E
KIRB
ASSY
(VWG2490)
KEY1, KEY2, KEY3
IC1201
IR Detector
CN201
CN1001
JA201
SR In
SELIR
<CN401 Pin19> AGC
<IC451> STID,SAPID
<IC451> MUTE
<CN401 Pin15> TUON
Q104
FAN
Driver
FAN
IC204
EEPROM
BR24L32F-W
BT201
Battery
SCLEEP
SDAEEP
ASCK
SST to M
SSM to TSIS
HST to M
HSM to TSYS
XRESET
XINTRA
IC203
Real-Time
Clock
RS5C372A
SCL
SDA
Other Devices
PCMOUT
2
CN703
< from DRIVE >
X201
XIN, XOUT
Ceramic
Resonator
IC201
XRESETIN
Reset IC
PST3265
SPDIF
1
PCMOUT
13
RAMUTE
525P
LAMUTE
16
17
18
22
23
24
CN702
< from/to MAIN >
U-com I/F
SELR
SELL
SELC
SELV/Y
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
L
R
Cr/R
Cb/B
Y/G
C
Y
CN701
< to/from MAIN >

3.1.3 MAIN ASSY BLOCK DIAGRAM

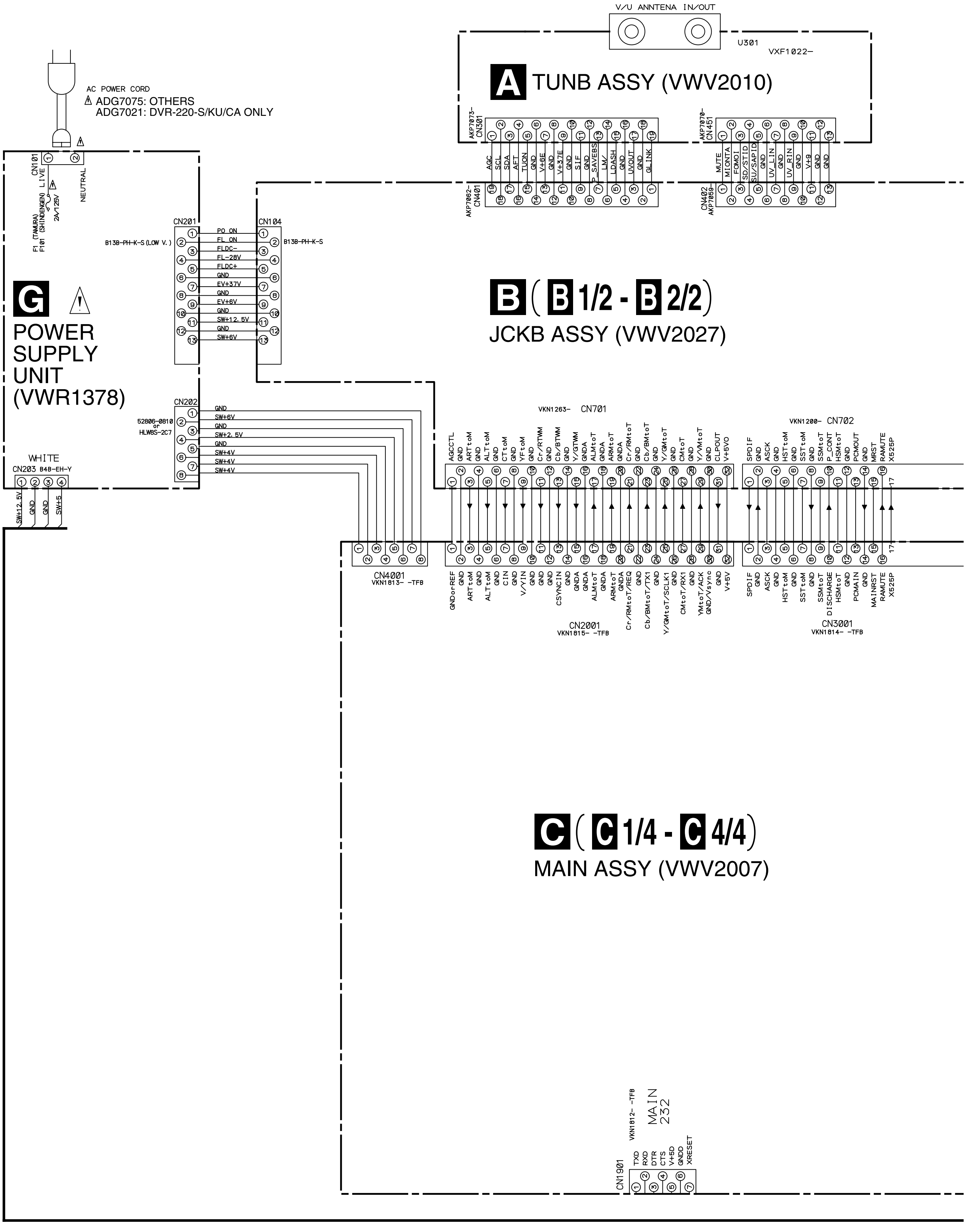

C
MAIN ASSY
(VWV2007)
To JCKB ASSY
CN2001
AUDIO LR OUT
IC3251
AUDIO LR IN
IC3101
AK5381VT
A/D
IC3201
PCM1742KE
DAC
VIDEO Y,C,Yp,Cb,Cr OUT
Q2101-Q2105
VIDEO Y,C IN
IC2301
AGC,ACC
IC3403
ADCCLKO
To JCKB ASSY
CN3001
D.OUT
CD D.OUT
TO TUNER u-COM
IC1301
ENC
SDRAM
MT48LC4M32B2TG-7
ECLK0
IC1201
DEC
SDRAM
W986416DH-6
DCLK0
IC1001
M65673WG
1 Chip System Codec
• MPEG2 PS Encode
• AC-3/Linear PCM Audio Encode
• 2ch ATA/ATAPI Interface
• MPEG2 PS Decode
• AC-3/MPEG1/Linear PCM Audio Decode
To Writer
K4S561632E-TC75
IC1401
ATA SDRAM
ATA BUS
CN4401
ARCLK0
SERIAL
CN1901
IC1102
FLASH
VYW2179


VSS1195
X4102
VCXO
Input Mster clock
27M
ADMCLKI
33/36M
IC3402
SM8707KV
PLL IC
24M
SRC**I
IC3301
SRC
SM5950AM
SRC**O
AMCLK1
36M
AMCLK2
33M
VMCLKI
27M
IC4205
TC7WHU04FU
Play Mster clock
IC4206
HCLK0
HOST BUS
IC1101
CPU SDRAM
K4S281632E-TC75

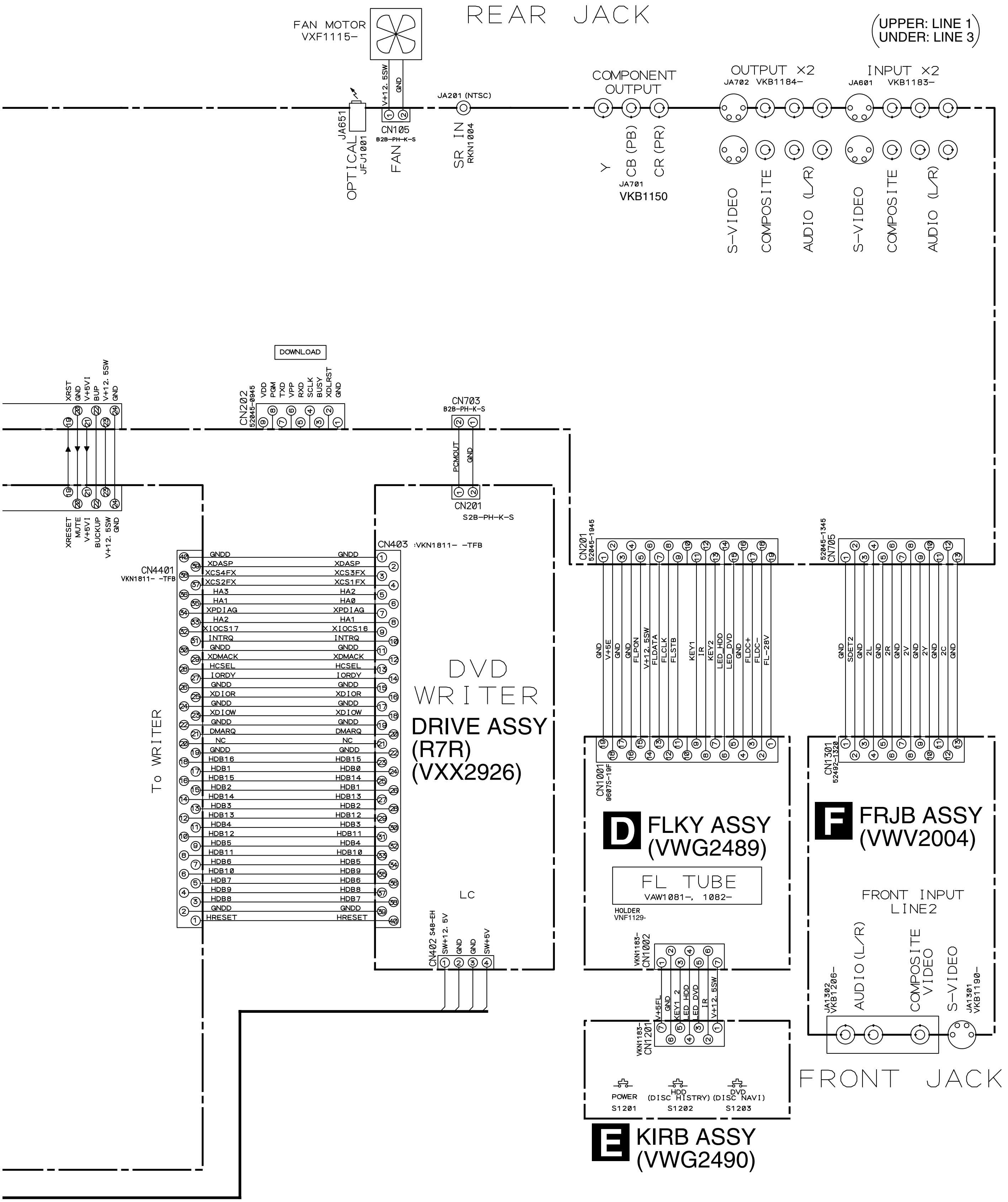
3.1.4 POWER BLOCK DIAGRAM


C MAIN ASSY
V+5A
IC4004
5V REG.
V+5D
IC4006
5V REG.
V+6V
IC4008
1.2V REG.
V+PRA
V+2R5V
IC4007
3.3V REG.
V+3V
V+4V
IC4002
3.3V REG.
V+3D
IC5002
2.5V REG.
V+2R5
V+12A
Q4000
V+13V
CN4001
(8P)
SW+6V
SW+2.5V
SW+4V
SW+4V
SW+4V
A TUNB ASSY
V+6E
V+37E
V+9
V+5VO
V+5RP
CN301
(19P)
CN451
(13P)
CN2001
(32P)
CN3001
(24P)
CN401
(19P)
CN402
(13P)
CN701
(32P)
CN702
(24P)
V+5VI
V+13SW
D FLKY ASSY
IC1001
FL Driver
VEE
V1001
FL TUBE
CN1001
(19P)
CN2005
(19P)
V–28V
FLDC –
FLDC +
NC
V+5E
Q103
V+6SW
Q101
Q102
IC102
3.3V REG.
V+3_3E
IC101
5V REG.
V+5E
V+5M
IC103
9V REG.
Q104
V+13FAN
CN105
(2P)
B JCKB ASSY
CN202
(8P)
G POWER SUPPLY UNIT
CN201
(13P)
CN104
(13P)
FLDC (–)
FLDC (+)
FL–28V
EV+37V
EV+6V
SW+13V
SW+6V
CN203
(4P)
SW+12V
SW+5V
DRIVE ASSY
R7R
DC FAN
MOTOR
CN101
F1
AC IN
LIVE
NEUTRAL

3.2 OVERALL WIRING DIAGRAM


V/U ANNTENA IN/OUT
U301
VXF1022–
A TUNB ASSY (VWV2010)
AKP7073– CN301
AKP7062– CN401
AGC
SCL
SDA
AFT
TUON
GND
V+6E
GND
V+37E
GND
SIF
GND
P_SAVEBS
LM/
LDASH
GND
UVOUT
GND
GLINK
AKP7070– CN451
CN402 AKP7059–
MUTE
MIONTA
FOMOI
SD/STID
SU/SAPID
GND
UV_LIN
GND
UV_RIN
GND
V+9
GND
GND
AC POWER CORD
ADG7075: OTHERS
ADG7021: DVR-220-S/KU/CA ONLY
CN101
LIVE
NEUTRAL
F1 (TAMURA)
F101 (SHINDENGEN)
2A/125V
G
POWER SUPPLY UNIT (VWR1378)
CN201
B13B-PH-K-S (LOW V.)
CN104
B13B-PH-K-S
PO ON
FL ON
FLDC-
FL-28V
FLDC+
GND
EV+37V
GND
EV+6V
GND
SW+12.5V
GND
SW+6V
CN202
52806-0810 or HLW8S-2C7
GND
SW+6V
GND
SW+2.5V
GND
SW+4V
SW+4V
SW+4V
WHITE
CN203 B4B-EH-Y
SW+12.5V
GND
GND
SW+5
B (B 1/2 - B 2/2)
JCKB ASSY (VWV2027)
VKN1263– CN701
AGCCTL
GND
ARTtoM
GND
ALTtoM
GND
CTtoM
GND
YFtoM
GND
Cr/RTWM
GND
Cb/BTWM
GND
Y/GTWM
GNDA
ALMtoT
GNDA
ARMtoT
GNDA
Cr/RMtoT
GND
Cb/BMtoT
GND
Y/GMtoT
GND
CMtoT
GND
Y/VMtoT
GND
CLPOUT
V+5VO
VKN1200– CN702
SPDIF
GND
ASCK
GND
HSTtoM
GND
SSTtoM
GND
SSMtoT
P_CONT
HSMtoT
GND
PCMOUT
GND
MRST
RAMUTE
X525P
17
CN4001
VKN1813– -TFB
GNDorREF
GND
ARTtoM
GND
ALTtoM
GND
CIN
GND
V/YIN
GND
GND
GND
CSYNCIN
GND
GNDA
GNDA
ALMtoT
GNDA
ARMtoT
GNDA
Cr/RMtoT/REQ
GND
Cb/BMtoT/TX1
GND
Y/GMtoT/SCLK1
GND
CMtoT/RX1
GND
YMtoT/ACK
GND/Vsync
GND
V+5V
CN2001
VKN1815– -TFB
SPDIF
GND
ASCK
GND
HSTtoM
GND
SSTtoM
GND
SSMtoT
DISCHARGE
HSMtoT
GND
PCMAIN
GND
MAINRST
RAMUTE
X525P
CN3001
VKN1814– -TFB
C (C 1/4 - C 4/4)
MAIN ASSY (VWV2007)
CN1901
VKN1812– -TFB
MAIN 232
TXD
RXD
DTR
CTS
V+5D
GNDD
XRESET

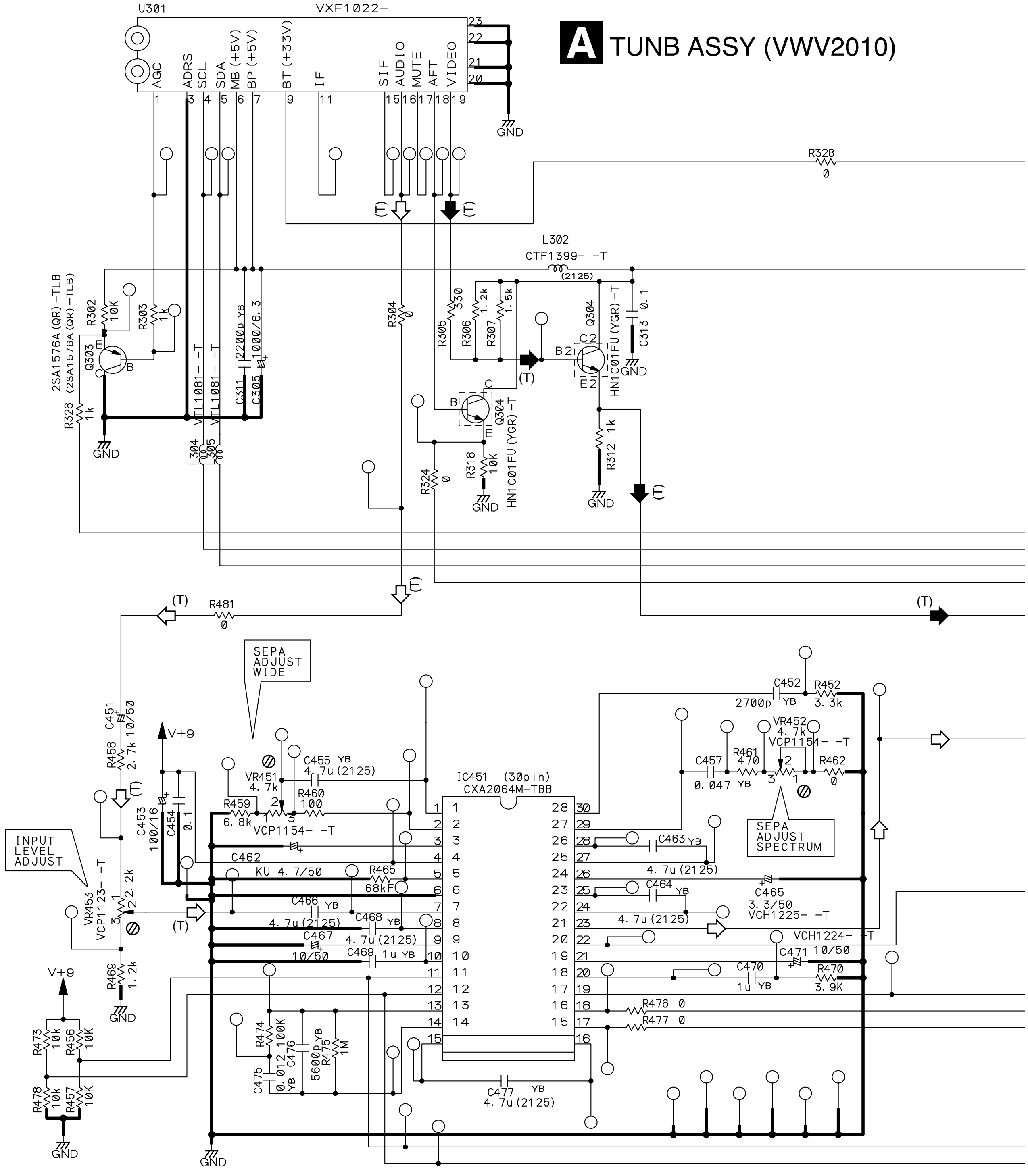
- When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- ⬭ : The power supply is shown with the marked box.

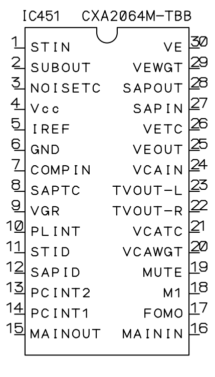


A
B
C
D
E
F
REAR JACK
FAN MOTOR VXF1115−
(UPPER: LINE 1 UNDER: LINE 3)
COMPONENT OUTPUT
OUTPUT ×2 JA702 VKB1184−
INPUT ×2 JA601 VKB1183−
JA651 OPTICAL JFJ1001
CN105 B2B-PH-K-S FAN
V+12.5SW GND
JA201 (NTSC) SR IN RKN1004
Y CB (PB) CR (PR) JA701 VKB1150
S-VIDEO COMPOSITE AUDIO (L/R)
S-VIDEO COMPOSITE AUDIO (L/R)
DOWNLOAD
XRST GND V+5VI BUP V+12.5SW GND
CN202 52045-0945
VDD PGM TXD VPP RXD SCLK BUSY XDLRST GND
CN703 B2B-PH-K-S
PCMOUT GND
CN201 S2B-PH-K-S
XRESET MUTE V+5VI BUCKUP V+12.5SW GND
CN4401 VKN1811− -TFB
CN403 :VKN1811− -TFB
GNDD XDASP XCS4FX XCS3FX XCS2FX XCS1FX HA3 HA2 HA1 HA0 XPDIAG HA2 HA1 XIOCS17 XIOCS16 INTRQ GNDD XDMACK HCSEL IORDY GNDD XDIOR GNDD XDIOW GNDD DMARQ NC GNDD HDB16 HDB15 HDB1 HDB0 HDB15 HDB14 HDB2 HDB1 HDB14 HDB13 HDB3 HDB2 HDB13 HDB12 HDB4 HDB3 HDB12 HDB11 HDB5 HDB4 HDB11 HDB10 HDB6 HDB5 HDB10 HDB9 HDB7 HDB6 HDB9 HDB8 HDB8 HDB7 GNDD HRESET
To WRITER
DVD WRITER
DRIVE ASSY (R7R) (VXX2926)
LC
CN402 S4B-EH SW+12.5V GND GND SW+5V
CN201 52045-1945
GND V+5E GND GND FLPON V+12.5SW FLDATA FLCLK FLSTB KEY1 IR KEY2 LED HDD LED DVD GND FLDC+ FLDC− FL-28V
52045-1345 CN705
GND SDET2 GND 2L GND 2R GND 2V GND 2Y GND 2C GND
CN1001 9607S-19F
D FLKY ASSY (VWG2489)
FL TUBE VAW1081−, 1082−
HOLDER VNF1129-
CN1301 52492-1320
F FRJB ASSY (VWV2004)
FRONT INPUT LINE2
JA1302 VKB1206− AUDIO (L/R) COMPOSITE VIDEO S-VIDEO JA1301 VKB1190−
VKN1183− CN1002
V+5FL GND KEY1 2 LED HDD LED DVD IR V+12.5SW
VKN1183− CN1201
POWER S1201
HDD (DISC HISTRY) S1202
DVD (DISC NAVI) S1203
FRONT JACK
E KIRB ASSY (VWG2490)

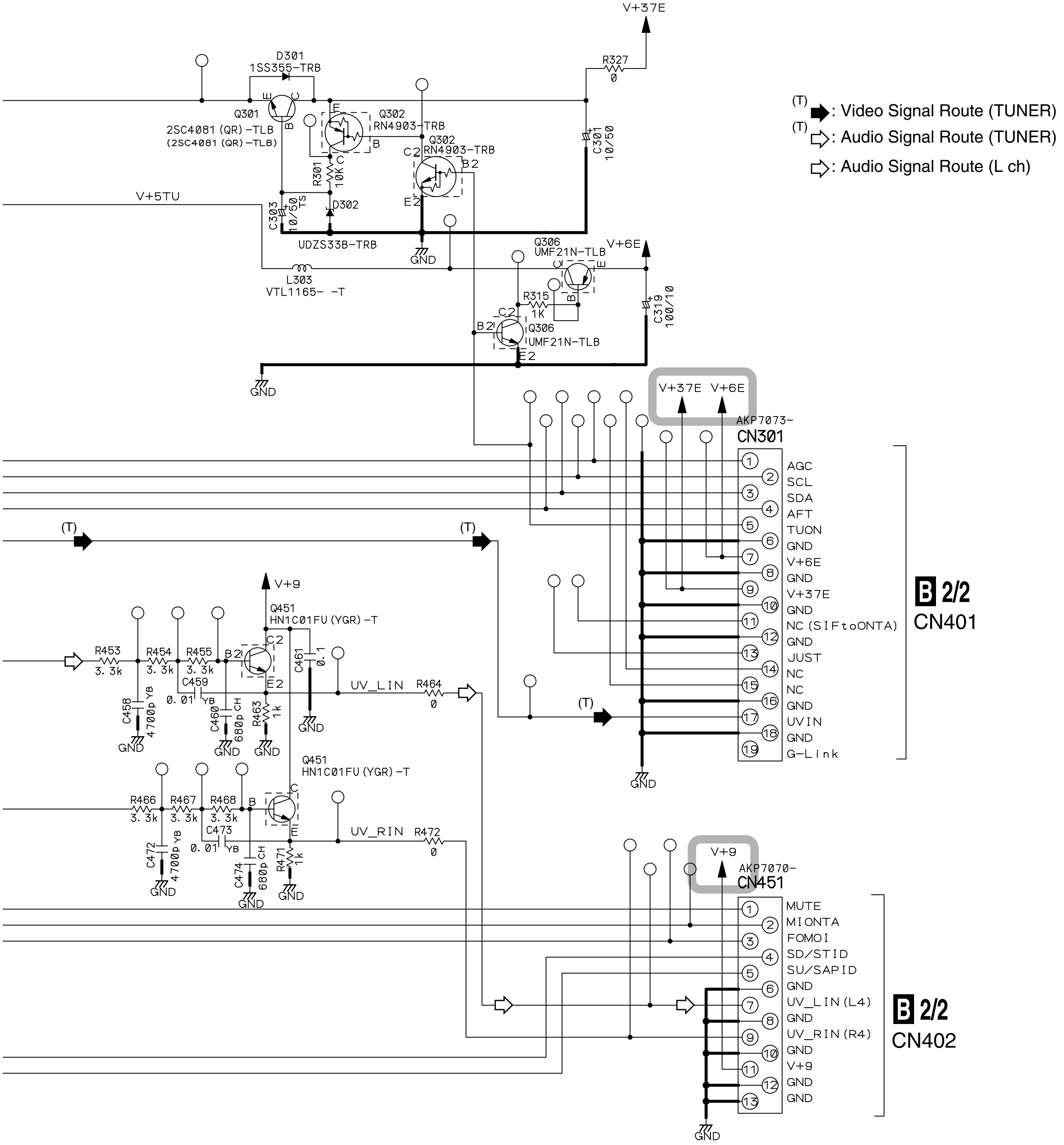
3.3 TUNB ASSY

A TUNB ASSY (VWV2010)


U301 VXF1022-
AGC
ADRS
SCL
SDA
MB (+5V)
BP (+5V)
BT (+33V)
IF
SIF
AUDIO
MUTE
AFT
VIDEO
GND
R328 0
L302 CTF1399- -T (2125)
2SA1576A(QR)-TLB (2SA1576A(QR)-TLB)
Q303
R302 10K
R303 1k
R326 1k
VTL1081- -T
VTL1081- -T
L304
L305
C311 2200p YB
C305 1000/6.3
R304 0
R305 330
R306 1.2k
R307 1.5k
Q304 HN1C01FU(YGR)-T
C313 0.1
R312 1k
R318 10K
R324 0
(T)
R481 0
SEPA ADJUST WIDE
C451 10/50
R458 2.7k
V+9
VR451 4.7k
C455 YB 4.7u(2125)
R460 100
R459 6.8k
VCP1154- -T
C453 100/16
C454 0.1
C462
KU 4.7/50
R465 68kF
C466 YB 4.7u(2125)
C468 YB 4.7u(2125)
C467 10/50
C469 1u YB
INPUT LEVEL ADJUST
VR453 VCP1123- -T 2.2k
R469 1.2k
R473 10k
R456 10K
R478 10k
R457 10K
R474 100K
C475 0.012 YB
C476 5600p YB
R475 1M
C477 YB 4.7u(2125)
IC451 (30pin) CXA2064M-TBB
C452 2700p YB
R452 3.3k
VR452 4.7k VCP1154- -T
C457 0.047 YB
R461 470
R462 0
SEPA ADJUST SPECTRUM
C463 YB
C464 YB
4.7u(2125)
C465 3.3/50 VCH1225- -T
VCH1224- -T
C471 10/50
C470 1u YB
R470 3.9K
R476 0
R477 0


IC451 CXA2064M-TBB
1 STIN
2 SUBOUT
3 NOISETC
4 Vcc
5 IREF
6 GND
7 COMPIN
8 SAPTC
9 VGR
10 PLINT
11 STID
12 SAPID
13 PCINT2
14 PCINT1
15 MAINOUT
30 VE
29 VEWGT
28 SAPOUT
27 SAPIN
26 VETC
25 VEOUT
24 VCAIN
23 TVOUT-L
22 TVOUT-R
21 VCATC
20 VCAWGT
19 MUTE
18 M1
17 FOMO
16 MAININ

A



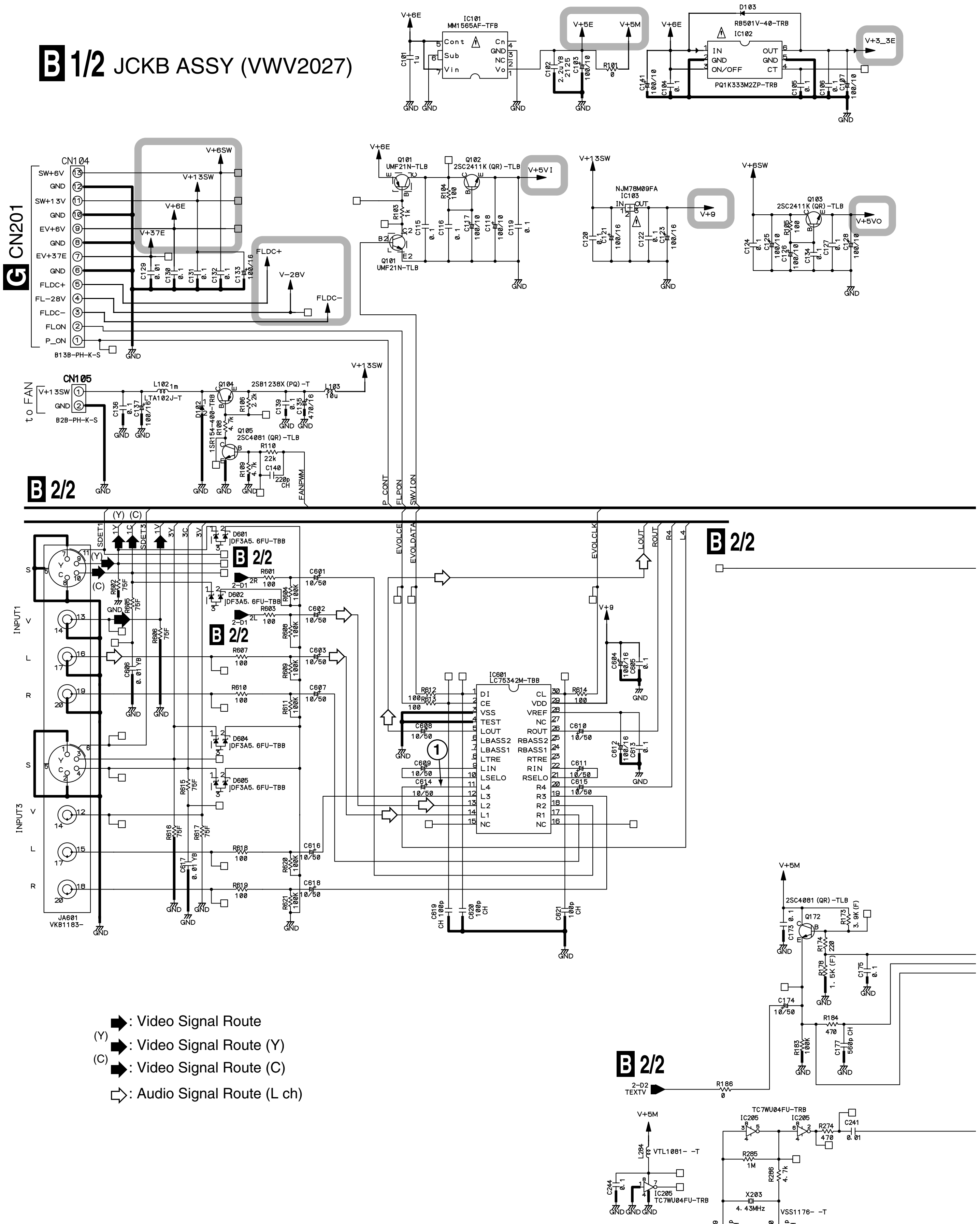
(T) ➡: Video Signal Route (TUNER)

(T) ⇨: Audio Signal Route (TUNER)

⇨: Audio Signal Route (L ch)

V+37E
R327
0
D301
1SS355-TRB
Q301
2SC4081 (QR) -TLB
(2SC4081 (QR) -TLB)
E
C
B
Q302
RN4903-TRB
R301
10K
C303
10/50
TS
D302
UDZS33B-TRB
C2
B2
E2
C301
10/50
GND
V+5TU
L303
VTL1165- -T
Q306
UMF21N-TLB
V+6E
R315
1K
C319
100/10
GND
V+37E V+6E
AKP7073-
CN301
AGC
SCL
SDA
AFT
TUON
GND
V+6E
GND
V+37E
GND
NC (SIFtoONTA)
GND
JUST
NC
NC
GND
UVIN
GND
G-Link
B 2/2
CN401
(T)
V+9
Q451
HN1C01FU (YGR) -T
R453
3.3k
R454
3.3k
R455
3.3k
C459
0.01
YB
C458
4700p
C460
680p
CH
R463
1k
C461
0.1
UV_LIN
R464
0
Q451
HN1C01FU (YGR) -T
R466
3.3k
R467
3.3k
R468
3.3k
C473
0.01
C472
4700p
C474
680p
R471
1k
UV_RIN
R472
0
V+9
AKP7070-
CN451
MUTE
MIONTA
FOMOI
SD/STID
SU/SAPID
GND
UV_LIN (L4)
GND
UV_RIN (R4)
GND
V+9
GND
GND
B 2/2
CN402

3.4 JCKB ASSY(1/2)



B 1/2 JCKB ASSY (VWV2027)
IC101 MM1565AF-TFB
Cont
Sub
Vin
Cn
GND
NC
Vo
V+6E
C101 1u
V+5E
V+5M
C102 2.2u YB 2125
C103 100/10
R101 0
D103 RB501V-40-TRB
IC102 PQ1K333M2ZP-TRB
IN
GND
ON/OFF
OUT
GND
CT
V+3_3E
C141 100/10
C104 0.1
C105 0.1
C106 0.1
C107 100/10
GND
CN104
G CN201
SW+6V
GND
SW+13V
GND
EV+6V
GND
EV+37E
GND
FLDC+
FL-28V
FLDC-
FLON
P_ON
B13B-PH-K-S
V+6SW
V+13SW
V+6E
V+37E
C129 0.01
C130 0.1
C131 0.1
C132 0.1
C133 100/16
FLDC+
V-28V
FLDC-
Q101 UMF21N-TLB
Q102 2SC2411K (QR)-TLB
V+5VI
R103 1k
R104 100
C115 0.1
C116 0.1
C117 100/10
C118 100/10
C119 0.1
V+13SW
NJM78M09FA
IC103
IN
OUT
V+9
C120 0.1
C121 100/16
C122 0.1
C123 100/16
V+6SW
Q103 2SC2411K (QR)-TLB
R105 100
V+5VO
C124 0.1
C125 100/10
C126 100/10
C134 0.1
C127 0.1
C128 100/10
CN105
to FAN
V+13SW
GND
B2B-PH-K-S
L102 1m
LTA102J-T
Q104 2SB1238X (PQ)-T
L103 10u
C136
C137 100/16
D102 1SR154-400-TRB
R106 2.2k
R108 4.7k
C139 0.1
C135 470/16
Q105 2SC4081 (QR)-TLB
R110 22k
C140 220p CH
R109 4.7k
FANPWM
P_CONT
FLPON
SWIION
B 2/2
(Y) (C)
SDET1
1Y
1C
SDET3
1V
3Y
3C
3V
D601 JDF3A5.6FU-TBB
B 2/2
R601 100
2R
2-D1
C601 10/50
R604 100K
R602 75F
R605 75F
D602 JDF3A5.6FU-TBB
R603 100
2L
2-D1
C602 10/50
R608 100K
B 2/2
R606 75F
R607 100
C603 10/50
R609 100K
C606 0.01 YB
R610 100
C607 10/50
R611 100K
D604 JDF3A5.6FU-TBB
D605 JDF3A5.6FU-TBB
R615 75F
R616 75F
R617 75F
C617 0.01 YB
R618 100
C616 10/50
R620 100K
R619 100
C618 10/50
R621 100K
INPUT1
INPUT3
S
V
L
R
JA601 VKB1183-
EVOLCE
EVOLDATA
EVOLCLK
LOUT
ROUT
R4
L4
B 2/2
V+9
C604 100/16
C605 0.1
IC601 LC75342M-TBB
DI
CE
VSS
TEST
LOUT
LBASS2
LBASS1
LTRE
LIN
LSELO
L4
L3
L2
L1
NC
CL
VDD
VREF
NC
ROUT
RBASS2
RBASS1
RTRE
RIN
RSELO
R4
R3
R2
R1
NC
R612 100
R613 100
R614 100
C608 10/50
C610 10/50
C612 100/16
C613 0.1
①
C609 10/50
C614 10/50
C611 10/50
C615 10/50
C619 100p CH
C620 100p CH
C621 100p CH
V+5M
2SC4081 (QR)-TLB
Q172
C173 0.1
R173 3.9K (F)
R174 220
R178 1.5K (F)
C175 0.1
C174 10/50
R184 470
R183 100K
C177 560p CH
B 2/2
2-D2 TEXTV
R186 0
V+5M
L204 VTL1081- -T
C244 0.1
IC205 TC7WU04FU-TRB
TC7WU04FU-TRB
IC205
IC205
R274 470
C241 0.01
R285 1M
R286 4.7k
X203 4.43MHz
VSS1176- -T
C249 27p CH
C250 27p CH
GND
1
2
3
4
A
B
C
D
E
F

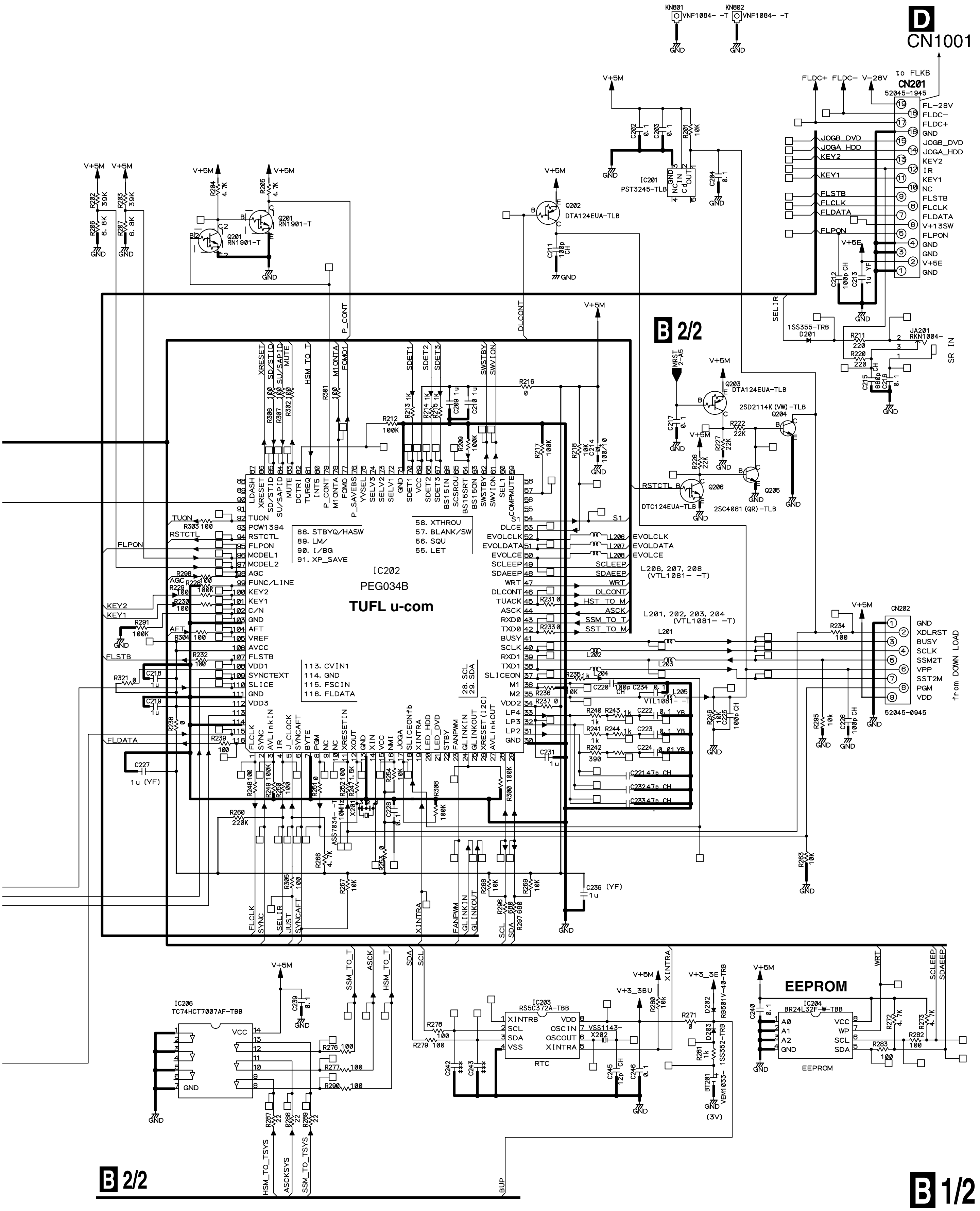
➡: Video Signal Route

(Y) ➡: Video Signal Route (Y)

(C) ➡: Video Signal Route (C)

⇨: Audio Signal Route (L ch)

B 1/2

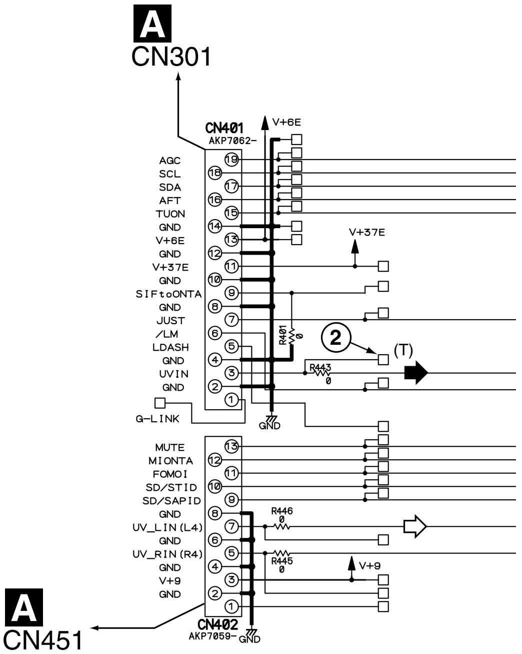

D
CN1001
to FLKB
CN201
52045-1945
FL-28V
FLDC-
FLDC+
GND
JOGB_DVD
JOGA_HDD
KEY2
IR
KEY1
NC
FLSTB
FLCLK
FLDATA
V+13SW
FLPON
GND
GND
V+5E
GND
FLDC+ FLDC- V-28V
KN801 VNF1084- -T
KN802 VNF1084- -T
IC201 PST3245-TLB
Q202 DTA124EUA-TLB
Q201 RN1901-T
JA201 RKN1004-
SR IN
D201 1SS355-TRB
B 2/2
MRST 2-A5
Q203 DTA124EUA-TLB
Q204 2SD2114K (VW)-TLB
Q205 2SC4081 (QR)-TLB
Q206 DTC124EUA-TLB
IC202
PEG034B
TUFL u-com
88. STBYQ/HASW
89. LM/
90. I/BG
91. XP_SAVE
58. XTHROU
57. BLANK/SW
56. SQU
55. LET
113. CVIN1
114. GND
115. FSCIN
116. FLDATA
28. SCL
29. SDA
L206, 207, 208 (VTL1081- -T)
L201, 202, 203, 204 (VTL1081- -T)
VTL1081- -T
CN202
52045-0945
GND
XDLRST
BUSY
SCLK
SSM2T
VPP
SST2M
PGM
VDD
from DOWN LOAD
EVOLCLK
EVOLDATA
EVOLCE
SCLEEP
SDAEEP
WRT
DLCONT
HST TO M
ASCK
SSM TO T
SST TO M
TUON
RSTCTL
FLPON
KEY2
KEY1
AGC
AFT
FLSTB
FLDATA
SELIR
DLCONT
P_CONT
X201 ASS7034- -T 10MHz
IC206
TC74HCT7007AF-TBB
IC203
RS5C372A-TBB
RTC
X202 VSS1143-
XINTRB SCL SDA VSS VDD OSCIN OSCOUT XINTRA
D202 RB501V-40-TRB
D203 1SS352-TRB
BT201 VEM1033-
(3V)
EEPROM
IC204
BR24L32F-W-TBB
A0 A1 A2 GND VCC WP SCL SDA
V+5M
V+3_3E
V+3_3BU
V+5E
GND
FLCLK
SYNC
SELIR
JUST
SYNCAFT
XINTRA
FANPWM
GLINKIN
GLINKOUT
SCL
SDA
SSM_TO_T
ASCK
HSM_TO_T
HSM_TO_TSYS
ASCKSYS
SSM_TO_TSYS
BUP
B 2/2

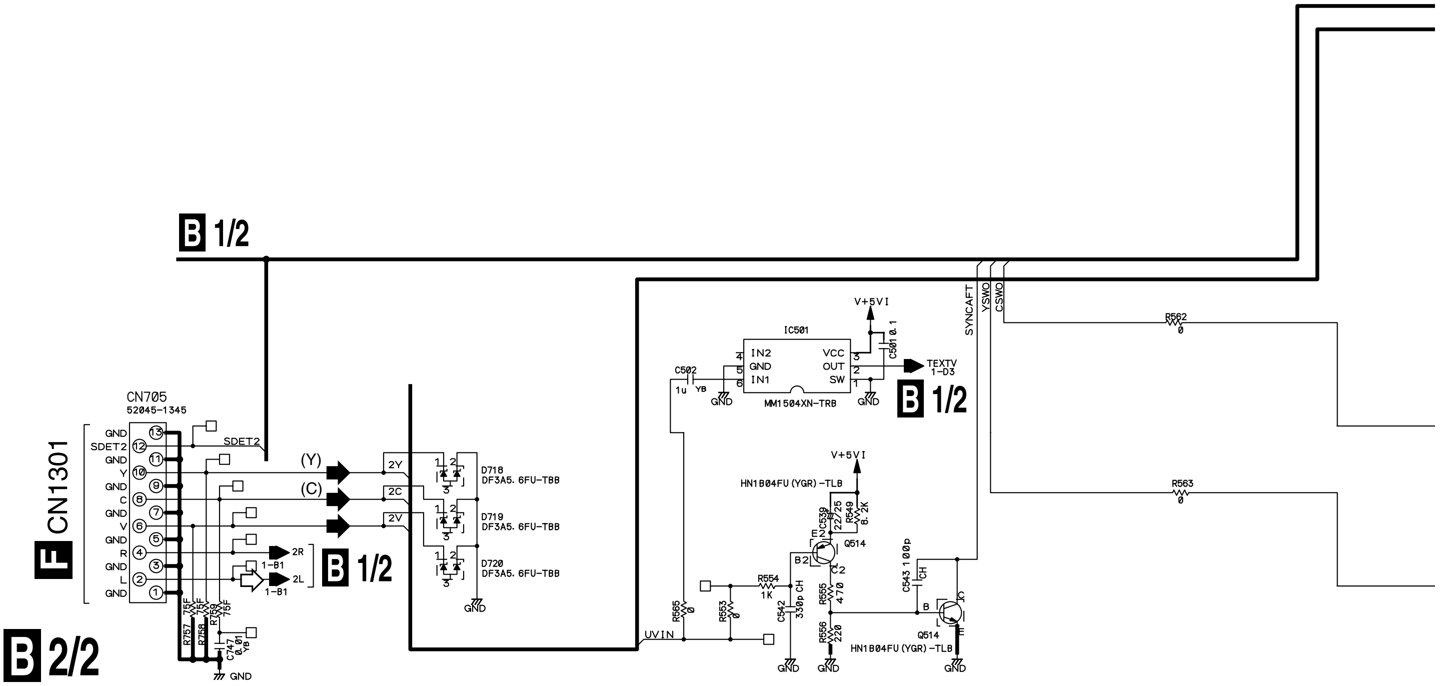
B 1/2

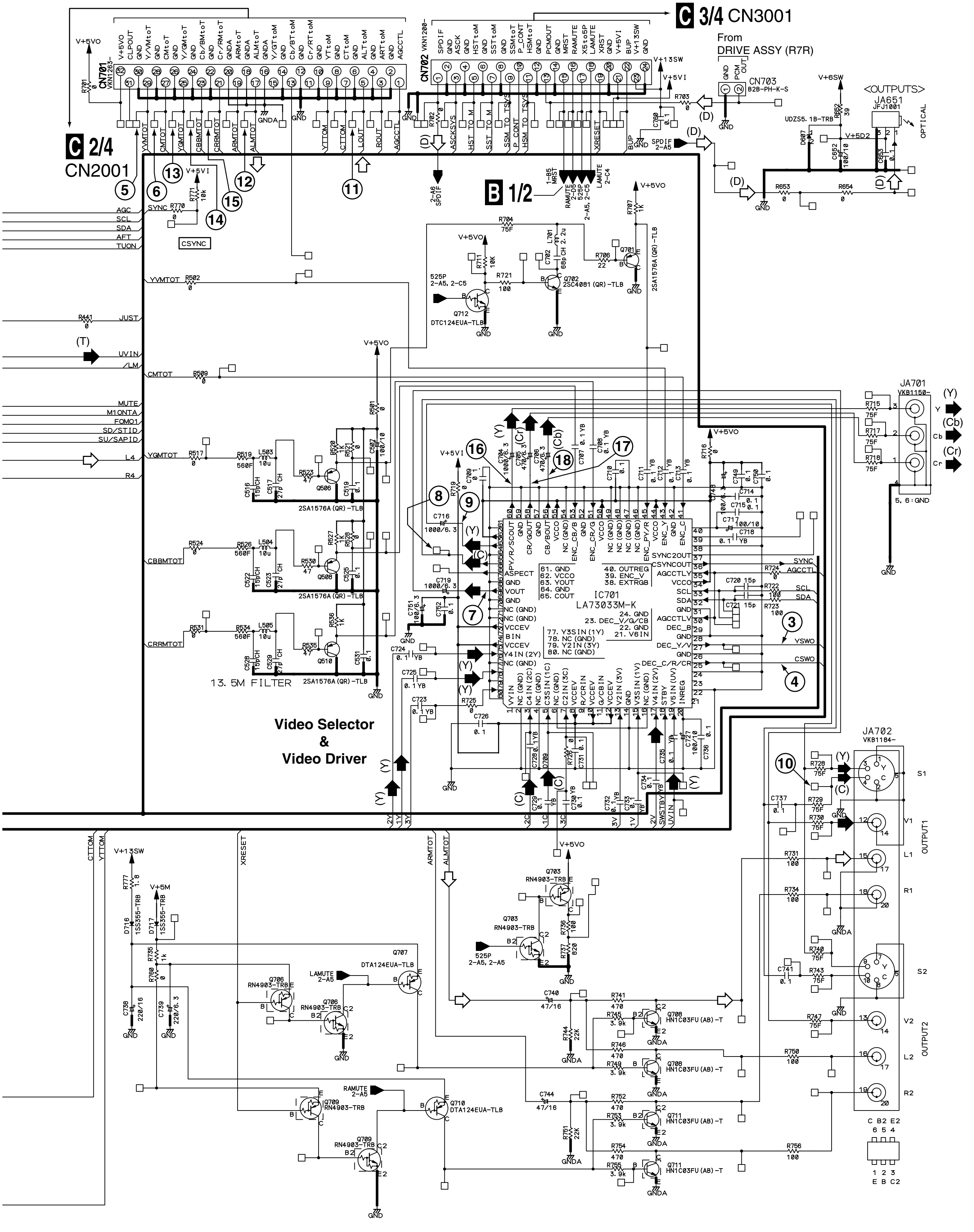
3.5 JCKB ASSY(2/2)

B 2/2 JCKB ASSY (VWV2027)

➡: Video Signal Route
(T) ➡: Video Signal Route (TUNER)
(Y) ➡: Video Signal Route (Y)
(C) ➡: Video Signal Route (C)
(Cb) ➡: Video Signal Route (Cb)
(Cr) ➡: Video Signal Route (Cr)
⇨: Audio Signal Route (L ch)
(D) ⇨: Audio Signal Route (DIGITAL)

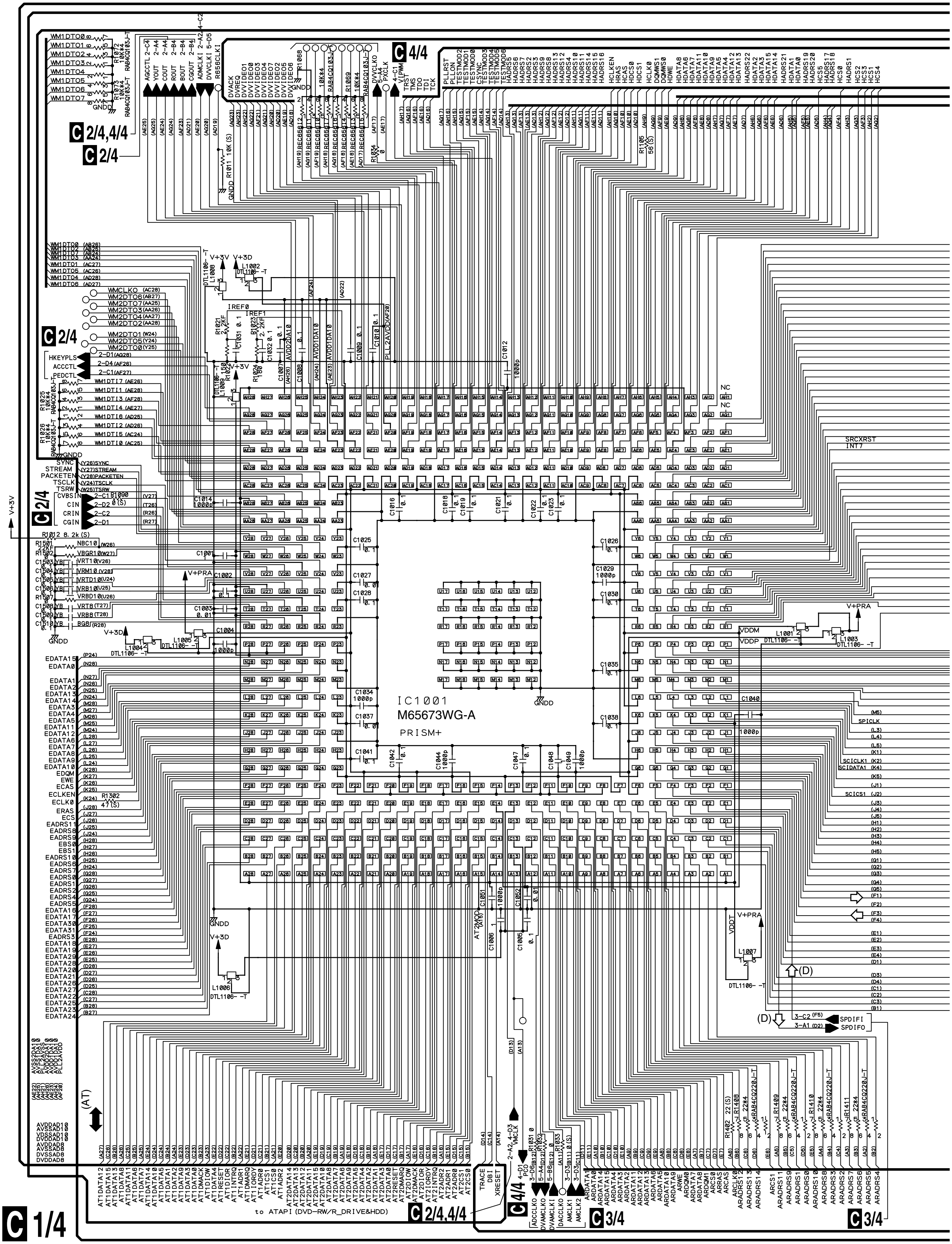

A
CN301
CN401
AKP7062-
V+6E
AGC
SCL
SDA
AFT
TUON
GND
V+6E
GND
V+37E
GND
SIFtoONTA
GND
JUST
/LM
LDASH
GND
UVIN
GND
G-LINK
V+37E
R401
0
2
(T)
R443
0
GND
MUTE
MIONTA
FOMOI
SD/STID
SD/SAPID
GND
UV_LIN(L4)
GND
UV_RIN(R4)
GND
V+9
GND
R446
0
R445
0
V+9
A
CN451
CN402
AKP7059-
GND


B 1/2
SYNCAFT
YSWO
CSWO
R562
0
R563
0
IC501
V+5VI
IN2
GND
IN1
VCC
OUT
SW
C501 0.1
TEXTV
1-D3
C502
1u YB
GND
MM1504XN-TRB
GND
B 1/2
V+5VI
HN1B04FU(YGR)-TLB
C539
22/25
R549
8.2K
E2
B2
C2
Q514
R554
1K
R565
0
R553
0
C542
330p CH
R555
470
R556
220
C543 100p
CH
B
C
E
Q514
HN1B04FU(YGR)-TLB
UVIN
GND
GND
GND
CN705
52045-1345
F CN1301
GND
SDET2
GND
Y
GND
C
GND
V
GND
R
GND
L
GND
SDET2
(Y)
(C)
2Y
2C
2V
D718
DF3A5.6FU-TBB
D719
DF3A5.6FU-TBB
D720
DF3A5.6FU-TBB
GND
2R
1-B1
2L
1-B1
B 1/2
R757 75F
R758 75F
R759 75F
C747 0.01 YB
GND
B 2/2

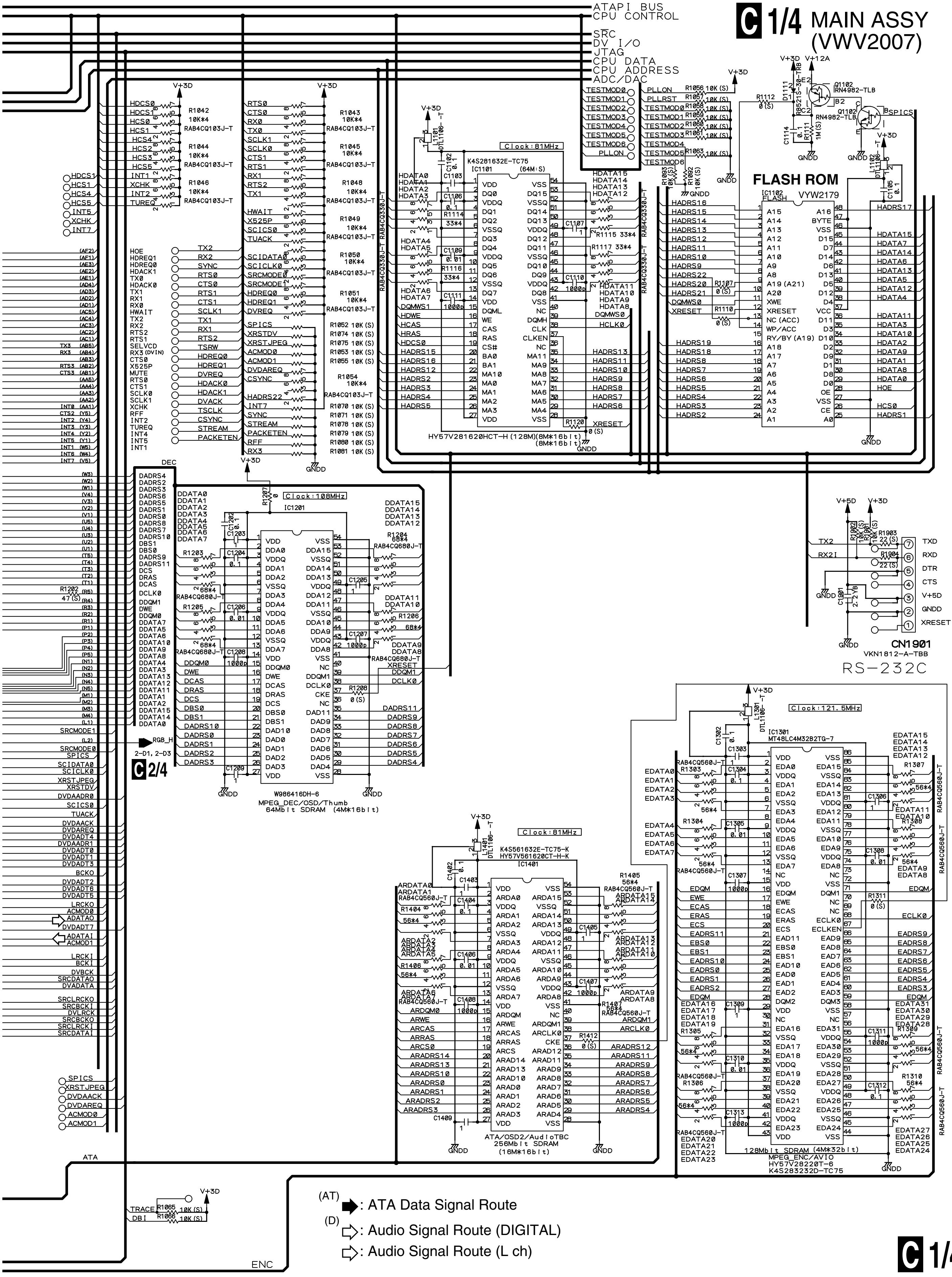

C 3/4 CN3001
From
DRIVE ASSY (R7R)
CN701 VKN1263-
CN702 VKN1200-
CN703 B2B-PH-K-S
C 2/4
CN2001
B 1/2
<OUTPUTS>
JA651 JFJ1001
OPTICAL
V+5VO
V+5VI
V+13SW
V+6SW
V+5D2
V+5M
UDZS5.1B-TRB
AGC
SCL
SDA
AFT
TUON
SYNC
CSYNC
YVMTOT
JUST
UVIN
/LM
CMTOT
MUTE
M1ONTA
FOMO1
SD/STID
SU/SAPID
L4
R4
YGMTOT
CBBMTOT
CRRMTOT
13.5M FILTER
2SA1576A(QR)-TLB
Q506
Q508
Q510
525P
2-A5, 2-C5
Q712
DTC124EUA-TLB
Q702
2SC4081(QR)-TLB
Q701
2SA1576A(QR)-TLB
IC701
LA73033M-K
61. GND
62. VCCO
63. YOUT
64. GND
65. COUT
40. OUTREG
39. ENC_V
38. EXTRGB
24. GND
23. DEC_V/G/CB
22. GND
21. V6IN
77. Y3SIN(1Y)
78. NC(GND)
79. Y2IN(3Y)
80. NC(GND)
JA701 VKB1150-
Y
Cb
Cr
5, 6 : GND
JA702 VKB1184-
S1
V1
L1
R1
OUTPUT1
S2
V2
L2
R2
OUTPUT2
Video Selector
&
Video Driver
CTTOM
YTTOM
XRESET
ARMTOT
ALMTOT
Q703 RN4903-TRB
Q706 RN4903-TRB
Q707 DTA124EUA-TLB
Q708 HN1C03FU(AB)-T
Q709 RN4903-TRB
Q710 DTA124EUA-TLB
Q711 HN1C03FU(AB)-T
D716 1SS355-TRB
D717 1SS355-TRB
LAMUTE 2-A5
RAMUTE 2-A5
C B2 E2
6 5 4
1 2 3
E B C2
GND
GNDA

B 2/2

3.6 MAIN ASSY(1/4)


IC1001
M65673WG-A
PRISM+
C 1/4
C 2/4
C 2/4,4/4
C 3/4
C 4/4
WM1DTO0
WM1DTO7
WMCLKO
HKEYPLS
ACCCTL
PEDCTL
SYNC
STREAM
PACKETEN
TSCLK
TSRW
CVBSIN
CIN
CRIN
CGIN
V+3V
V+3D
V+PRA
GNDD
EDATA0
EDATA15
SPICLK
SCICLK1
SCIDATA1
SCICS1
SRCXRST
INT7
SPDIFI
SPDIFO
VDDM
VDDP
VDDT
TRACE
DBI
XRESET
ADCCLKO
DVAMCLKO
DVAMCLKI
DACCLKO
AMCLK1
AMCLK2
to ATAPI (DVD-RW/R_DRIVE&HDD)
(AT)
(D)
NC
L1001
L1002
L1003
L1004
L1005
L1006
L1007
L1008
L1009

C 1/4 MAIN ASSY
(VWV2007)


ATAPI BUS
CPU CONTROL
SRC
DV I/O
JTAG
CPU DATA
CPU ADDRESS
ADC/DAC
FLASH ROM
IC1102 FLASH VYW2179
Clock:81MHz
K4S281632E-TC75
IC1101 (64M:S)
HY57V281620HCT-H (128M)(8M*16bit)
(8M*16bit)
Clock:108MHz
IC1201
W986416DH-6
MPEG_DEC/OSD/Thumb
64Mbit SDRAM (4M*16bit)
Clock:81MHz
K4S561632E-TC75-K
HY57V561620CT-H-K
IC1401
ATA/OSD2/AudioTBC
256Mbit SDRAM
(16M*16bit)
Clock:121.5MHz
IC1301
MT48LC4M32B2TG-7
128Mbit SDRAM (4M*32bit)
MPEG_ENC/AVIO
HY57V28220T-6
K4S283232D-TC75
CN1901
VKN1812-A-TBB
RS-232C
TXD
RXD
DTR
CTS
V+5D
GNDD
XRESET
Q1102 RN4982-TLB
SPICS
DEC
ENC
ATA
RGB_H
2-D1, 2-D3
C 2/4
TRACE
DBI
V+3D
V+12A
V+5D
GNDD

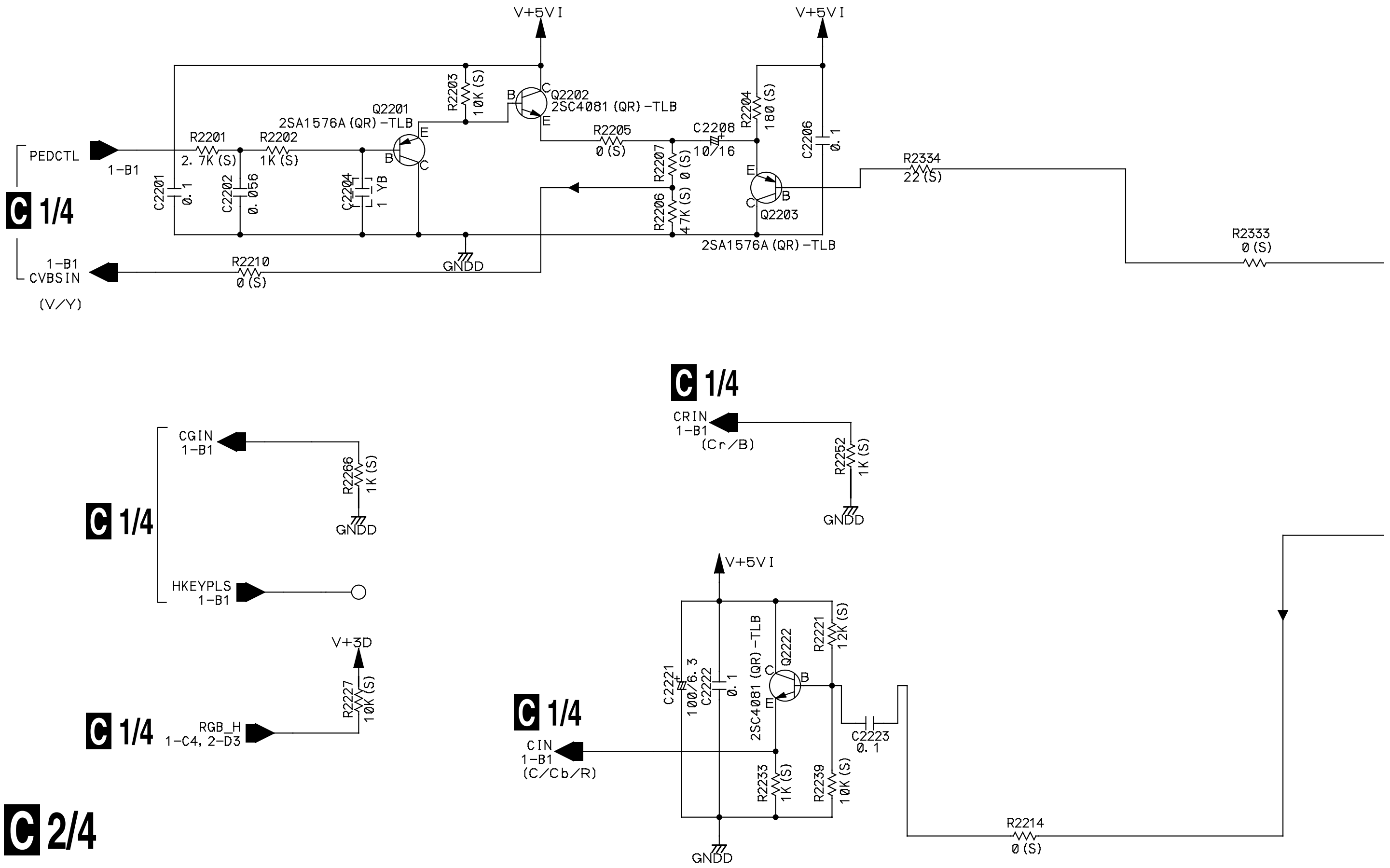
(AT) ➡: ATA Data Signal Route

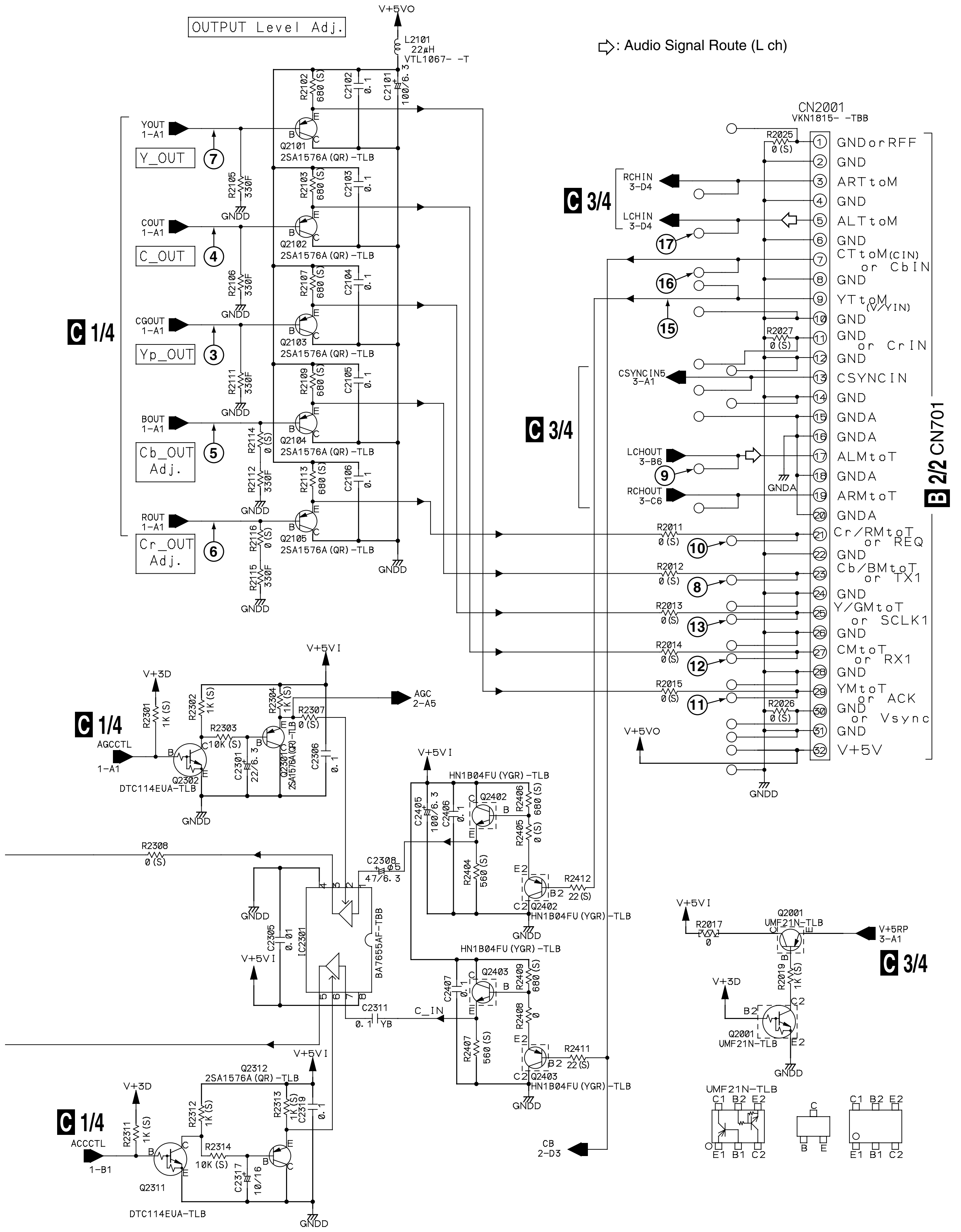
(D) ⇨: Audio Signal Route (DIGITAL)

⇨: Audio Signal Route (L ch)

3.7 MAIN ASSY(2/4)

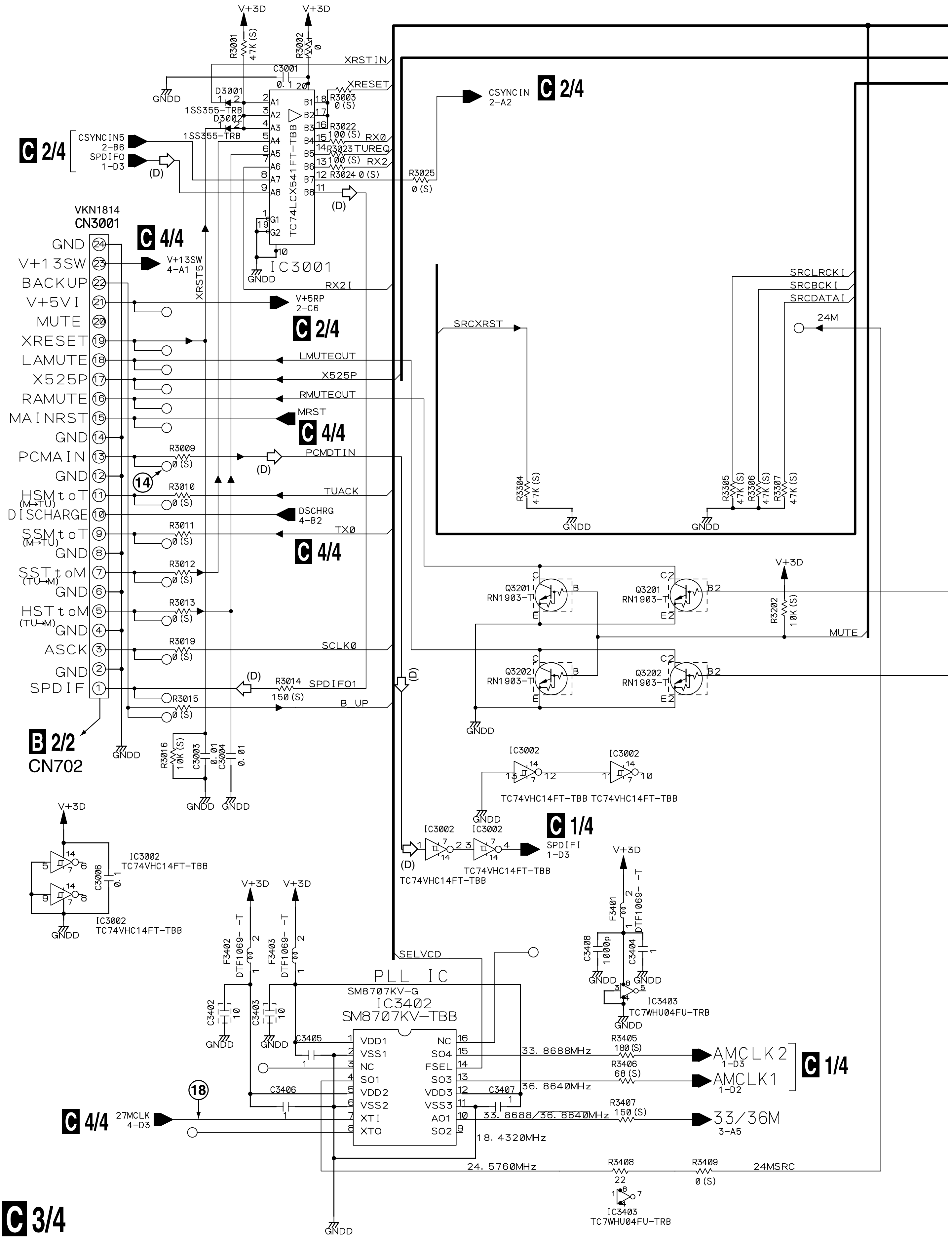
C 2/4 MAIN ASSY (VWV2007)


V+5VI
V+5VI
PEDCTL
1-B1
C 1/4
1-B1
CVBSIN
(V/Y)
R2201
2.7K(S)
R2202
1K(S)
2SA1576A(QR)-TLB
Q2201
C2201
0.1
C2202
0.056
C2204
1 YB
R2203
10K(S)
Q2202
2SC4081(QR)-TLB
B
C
E
R2205
0(S)
C2208
10/16
R2207
0(S)
R2206
47K(S)
R2204
180(S)
C2206
0.1
Q2203
2SA1576A(QR)-TLB
R2210
0(S)
GNDD
R2334
22(S)
R2333
0(S)
C 1/4
CRIN
1-B1
(Cr/B)
R2252
1K(S)
GNDD
CGIN
1-B1
R2266
1K(S)
GNDD
C 1/4
HKEYPLS
1-B1
V+3D
R2227
10K(S)
C 1/4
RGB_H
1-C4, 2-D3
V+5VI
C2221
100/6.3
C2222
0.1
Q2222
2SC4081(QR)-TLB
R2221
12K(S)
C 1/4
CIN
1-B1
(C/Cb/R)
C2223
0.1
R2233
1K(S)
R2239
10K(S)
GNDD
R2214
0(S)
C 2/4


OUTPUT Level Adj.
V+5VO
L2101
22μH
VTL1067- -T
: Audio Signal Route (L ch)
R2102 680(S)
C2102 0.1
C2101 100/6.3
YOUT 1-A1
Y_OUT
7
R2105 330F
Q2101 2SA1576A(QR)-TLB
R2103 680(S)
C2103 0.1
COUT 1-A1
C_OUT
4
R2106 330F
Q2102 2SA1576A(QR)-TLB
R2107 680(S)
C2104 0.1
CGOUT 1-A1
Yp_OUT
3
R2111 330F
Q2103 2SA1576A(QR)-TLB
R2109 680(S)
C2105 0.1
BOUT 1-A1
Cb_OUT Adj.
5
R2114 0(S)
R2112 330F
Q2104 2SA1576A(QR)-TLB
R2113 680(S)
C2106 0.1
ROUT 1-A1
Cr_OUT Adj.
6
R2116 0(S)
R2115 330F
Q2105 2SA1576A(QR)-TLB
GNDD
C 1/4
C 3/4
RCHIN 3-D4
LCHIN 3-D4
CSYNCIN5 3-A1
LCHOUT 3-B6
RCHOUT 3-C6
17
16
15
9
10
8
13
12
11
CN2001
VKN1815- -TBB
R2025 0(S)
R2027 0(S)
R2011 0(S)
R2012 0(S)
R2013 0(S)
R2014 0(S)
R2015 0(S)
R2026 0(S)
1 GNDorRFF
2 GND
3 ARTtoM
4 GND
5 ALTtoM
6 GND
7 CTtoM(CIN) or CbIN
8 GND
9 YTtoM(V/YIN)
10 GND
11 GND or CrIN
12 GND
13 CSYNCIN
14 GND
15 GNDA
16 GNDA
17 ALMtoT
18 GNDA
19 ARMtoT
20 GNDA
21 Cr/RMtoT or REQ
22 GND
23 Cb/BMtoT or TX1
24 GND
25 Y/GMtoT or SCLK1
26 GND
27 CMtoT or RX1
28 GND
29 YMtoT or ACK
30 GND or Vsync
31 GND
32 V+5V
GNDA
V+5VO
B 2/2 CN701
V+5VI
V+3D
AGCCTL 1-A1
R2301 1K(S)
R2302 1K(S)
R2303 10K(S)
R2304 1K(S)
R2307 0(S)
C2301 22/6.3
C2306 0.1
Q2301 2SA1576A(QR)-TLB
Q2302 DTC114EUA-TLB
AGC 2-A5
R2308 0(S)
C2308 47/6.3
C2305 0.01
IC2301 BA7655AF-TBB
C2311 0.1 YB
C_IN
HN1B04FU(YGR)-TLB
C2405 100/6.3
C2406 0.1
Q2402
R2406 680(S)
R2405 0(S)
R2404 560(S)
R2412 22(S)
Q2402 HN1B04FU(YGR)-TLB
HN1B04FU(YGR)-TLB
C2407 0.1
Q2403
R2409 680(S)
R2408 0
R2407 560(S)
R2411 22(S)
Q2403 HN1B04FU(YGR)-TLB
CB 2-D3
Q2312 2SA1576A(QR)-TLB
ACCCTL 1-B1
R2311 1K(S)
R2312 1K(S)
R2313 1K(S)
C2319 0.1
R2314 10K(S)
C2317 10/16
Q2311
DTC114EUA-TLB
V+5VI
R2017 0
Q2001 UMF21N-TLB
V+5RP 3-A1
R2019 1K(S)
Q2001 UMF21N-TLB
UMF21N-TLB
C1 B2 E2
E1 B1 C2
C
B E
C1 B2 E2
E1 B1 C2

C 2/4

3.8 MAIN ASSY(3/4)

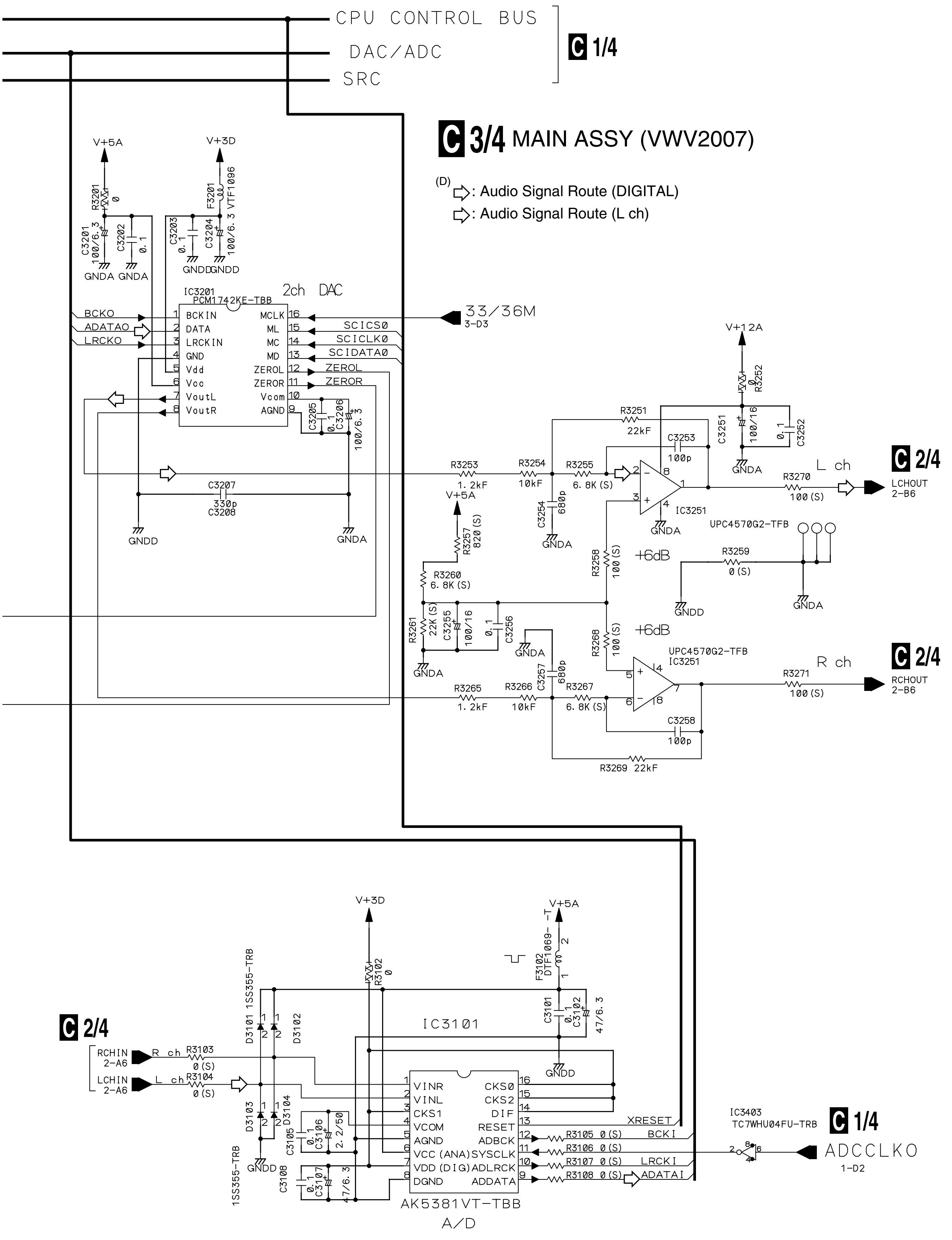


V+3D
R3001 47K (S)
R3002 0
C3001 0.1
XRSTIN
XRESET
D3001 1SS355-TRB
D3002 1SS355-TRB
R3003 0 (S)
R3022 100 (S)
RX0
R3023 TUREQ
100 (S)
RX2
R3024 0 (S)
R3025 0 (S)
TC74LCX541FT-TBB
IC3001
GNDD
RX2I
CSYNCIN 2-A2
C 2/4
CSYNCIN5 2-B6
SPDIFO 1-D3
(D)
VKN1814
CN3001
GND 24
V+13SW 23
BACKUP 22
V+5VI 21
MUTE 20
XRESET 19
LAMUTE 18
X525P 17
RAMUTE 16
MAINRST 15
GND 14
PCMAIN 13
GND 12
HSMtoT 11 (M→TU)
DISCHARGE 10
SSMtoT 9 (M→TU)
GND 8
SSTtoM 7 (TU→M)
GND 6
HSTtoM 5 (TU→M)
GND 4
ASCK 3
GND 2
SPDIF 1
C 4/4
V+13SW 4-A1
XRST5
V+5RP 2-C6
C 2/4
LMUTEOUT
X525P
RMUTEOUT
MRST
C 4/4
R3009 0 (S)
PCMDTIN
⑭
R3010 0 (S)
TUACK
DSCHRG 4-B2
R3011 0 (S)
TX0
C 4/4
R3012 0 (S)
R3013 0 (S)
R3019 0 (S)
SCLK0
R3014 150 (S)
SPDIFO1
R3015 0 (S)
B_UP
B 2/2
CN702
R3016 10K (S)
C3003 0.01
C3004 0.01
SRCXRST
SRCLRCKI
SRCBCKI
SRCDATAI
24M
R3304 47K (S)
R3305 47K (S)
R3306 47K (S)
R3307 47K (S)
Q3201 RN1903-T
Q3202 RN1903-T
R3202 10K (S)
MUTE
IC3002 TC74VHC14FT-TBB
C3006 0.1
SPDIFI 1-D3
C 1/4
F3401 DTF1069-T
C3408 1000p
C3404 1
IC3403 TC7WHU04FU-TRB
F3402 DTF1069-T
F3403 DTF1069-T
C3402 10
C3403 10
SELVCD
PLL IC
SM8707KV-G
IC3402
SM8707KV-TBB
VDD1 VSS1 NC SO1 VDD2 VSS2 XTI XTO
NC SO4 FSEL SO3 VDD3 VSS3 AO1 SO2
C3405 1
C3406 1
C3407 1
33.8688MHz
36.8640MHz
33.8688/36.8640MHz
18.4320MHz
24.5760MHz
R3405 180 (S)
R3406 68 (S)
R3407 150 (S)
R3408 22
R3409 0 (S)
AMCLK2 1-D3
AMCLK1 1-D2
C 1/4
33/36M 3-A5
24MSRC
⑱
27MCLK 4-D3
C 4/4
C 3/4

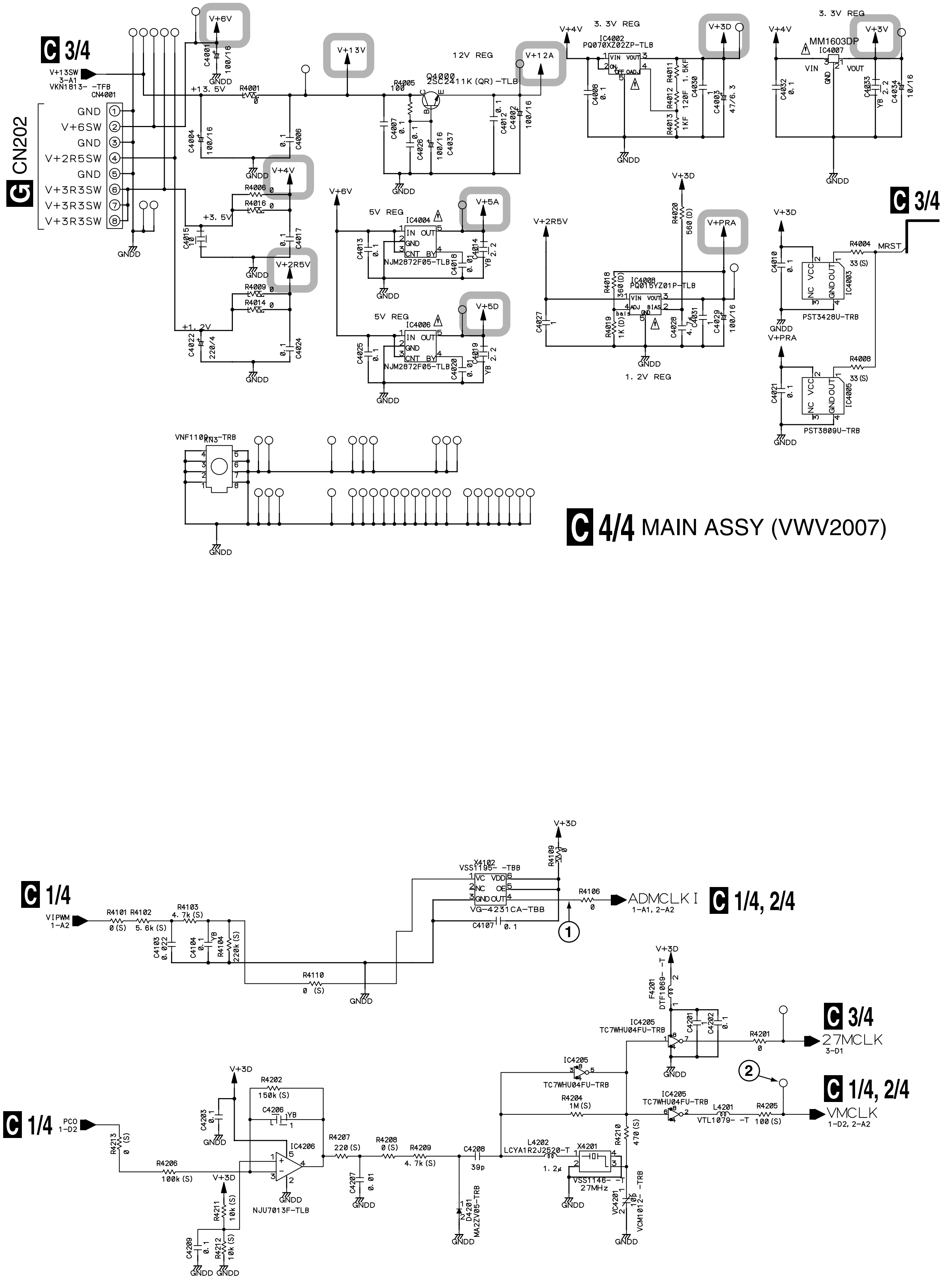
C 3/4 MAIN ASSY (VWV2007)

(D) ⇨: Audio Signal Route (DIGITAL)

⇨: Audio Signal Route (L ch)

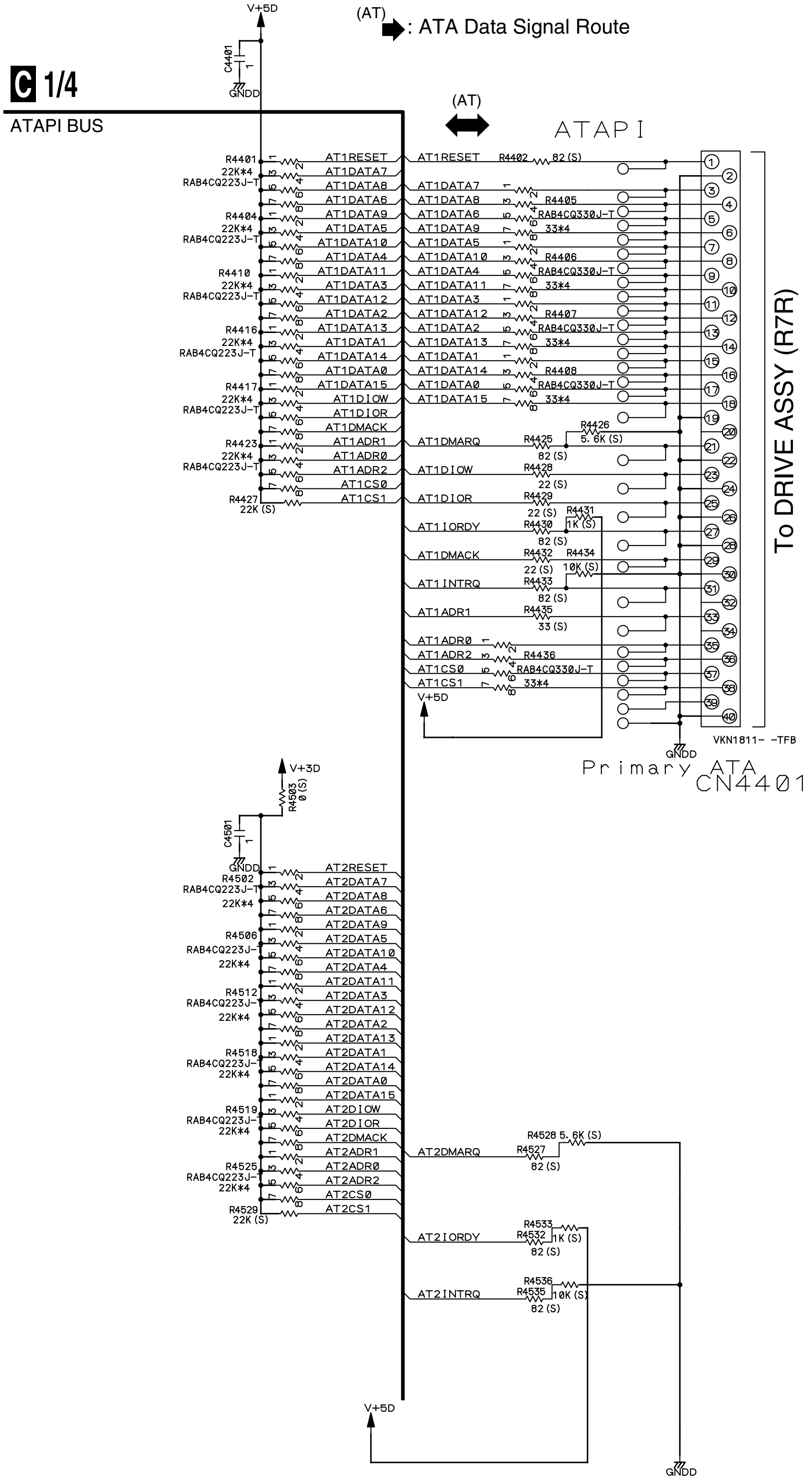

CPU CONTROL BUS
DAC/ADC
SRC
C 1/4
V+5A
V+3D
R3201 0
F3201 VTF1096
C3201 100/6.3
C3202 0.1
C3203 0.1
C3204 100/6.3
GNDA GNDA
GNDD GNDD
IC3201
PCM1742KE-TBB
2ch DAC
BCKO
ADATAO
LRCKO
1 BCKIN
2 DATA
3 LRCKIN
4 GND
5 Vdd
6 Vcc
7 VoutL
8 VoutR
MCLK 16
ML 15
MC 14
MD 13
ZEROL 12
ZEROR 11
Vcom 10
AGND 9
33/36M
3-D3
SCICS0
SCICLK0
SCIDATA0
ZEROL
ZEROR
C3205 0.1
C3206 100/6.3
C3207
330p
C3208
GNDD
GNDA
V+12A
R3252 0
C3251 100/16
C3252 0.1
GNDA
R3251 22kF
C3253 100p
R3253 1.2kF
R3254 10kF
R3255 6.8K(S)
C3254 680p
GNDA
IC3251
UPC4570G2-TFB
GNDA
L ch
R3270 100(S)
C 2/4
LCHOUT
2-B6
V+5A
R3257 820(S)
R3260 6.8K(S)
R3258 100(S)
+6dB
R3259 0(S)
GNDD
GNDA
R3261 22K(S)
C3255 100/16
C3256 0.1
GNDA
GNDA
R3268 100(S)
+6dB
UPC4570G2-TFB
IC3251
R ch
C3257 680p
R3265 1.2kF
R3266 10kF
R3267 6.8K(S)
R3271 100(S)
C 2/4
RCHOUT
2-B6
C3258 100p
R3269 22kF
V+3D
V+5A
R3102 0
F3102 DTF1069-T
D3101 1SS355-TRB
D3102
IC3101
C3101 0.1
C3102 47/6.3
GNDD
C 2/4
RCHIN 2-A6
R ch R3103 0(S)
LCHIN 2-A6
L ch R3104 0(S)
D3103
D3104
GNDD
1SS355-TRB
C3105 0.1
C3106 2.2/50
C3108 0.1
C3107 47/6.3
1 VINR
2 VINL
3 CKS1
4 VCOM
5 AGND
6 VCC (ANA)
7 VDD (DIG)
8 DGND
CKS0 16
CKS2 15
DIF 14
RESET 13
ADBCK 12
SYSCLK 11
ADLRCK 10
ADDATA 9
AK5381VT-TBB
A/D
XRESET
R3105 0(S) BCKI
R3106 0(S)
R3107 0(S) LRCKI
R3108 0(S) ADATAI
IC3403
TC7WHU04FU-TRB
C 1/4
ADCCLKO
1-D2

3.9 MAIN ASSY(4/4)

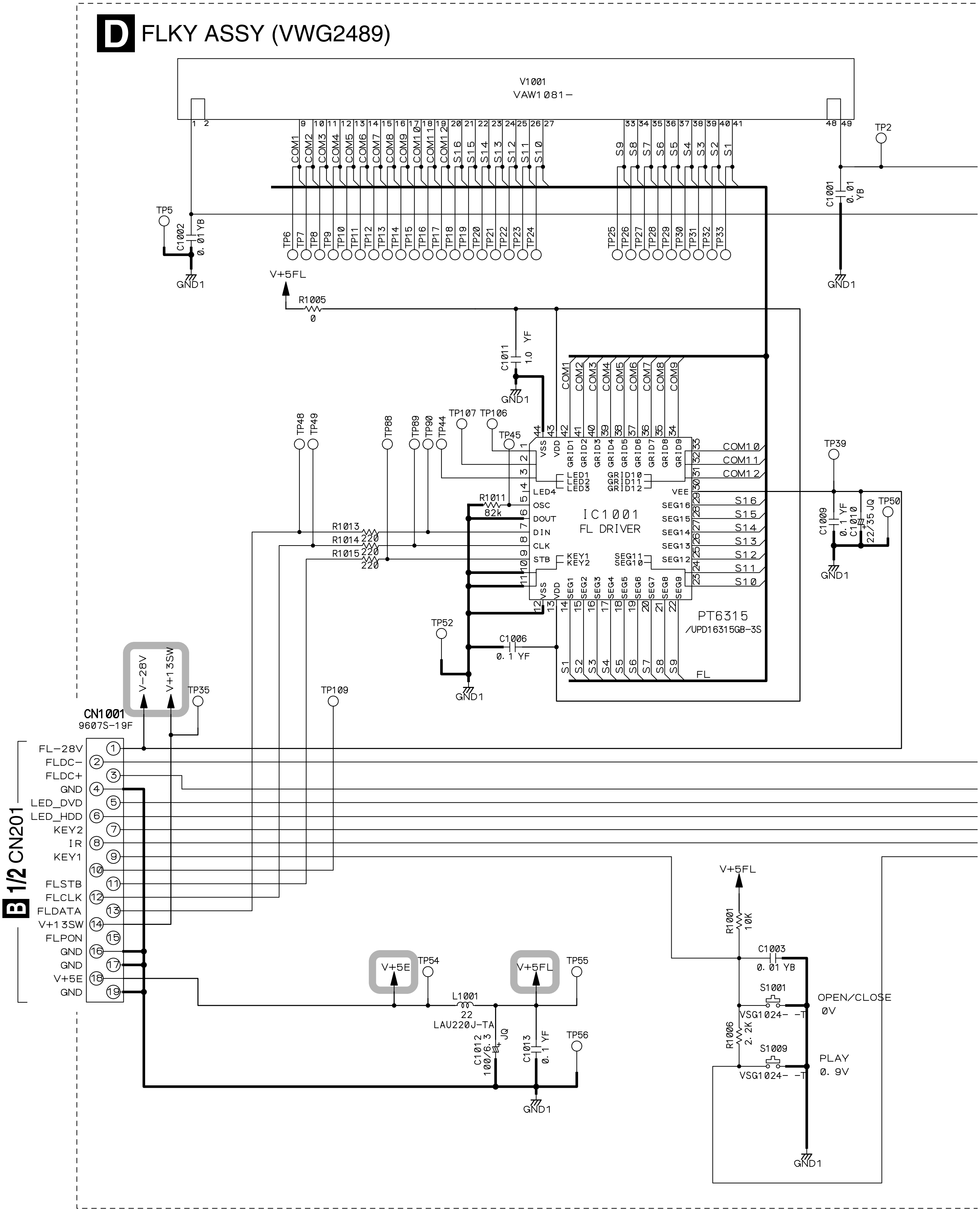

C 3/4
V+13SW
3-A1
VKN1813- -TFB
CN4001
G CN202
GND 1
V+6SW 2
GND 3
V+2R5SW 4
GND 5
V+3R3SW 6
V+3R3SW 7
V+3R3SW 8
GNDD
V+6V
C4001 100/16
+13.5V
R4001 0
V+13V
C4004 100/16
C4006 0.1
V+4V
R4006 0
R4016 0
+3.5V
C4015 10
C4017 0.1
V+2R5V
R4009 0
R4014 0
+1.2V
C4022 220/4
C4024 0.1
12V REG
Q4000
2SC2411K (QR) -TLB
R4005 100
C4007 0.1
C4026 0.1
C4037 100/16
C4012 0.1
C4002 100/16
V+12A
V+4V
3.3V REG
IC4002
PQ070XZ02ZP-TLB
VIN VOUT
ON OFF
GND OADJ
C4008 0.1
R4011 1.5KF
R4012 120F
R4013 1KF
C4030 1
C4003 47/6.3
V+3D
3.3V REG
MM1603DP
IC4007
VIN VOUT GND
C4032 0.1
C4033 2.2 YB
C4034 10/16
V+3V
V+6V
5V REG
IC4004
IN OUT GND CNT BY
NJM2872F05-TLB
C4013 0.1
C4018 0.01
C4014 2.2 YB
V+5A
5V REG
IC4006
NJM2872F05-TLB
C4025 0.1
C4020 0.01
C4019 2.2 YB
V+5D
V+2R5V
V+3D
R4020 560 (D)
V+PRA
R4018 360 (D)
IC4008
PQ015YZ01P-TLB
VIN VOUT ADJ BIAS GND
R4019 1K (D)
C4027 1
C4028 4.7
C4031 1
C4029 100/16
1.2V REG
V+3D
R4004 33 (S)
MRST
C 3/4
C4010 0.1
IC4003
PST3428U-TRB
V+PRA
R4008 33 (S)
C4021 0.1
IC4005
PST3809U-TRB
VNF1109- -TRB
RN3
C 1/4
VIPWM
1-A2
R4101 0 (S)
R4102 5.6k (S)
R4103 4.7k (S)
C4103 0.022
C4104 0.1 YB
R4104 220k (S)
R4110 0 (S)
V+3D
R4109 0
X4102
VSS1195- -TBB
VC VDD NC OE GND OUT
VG-4231CA-TBB
C4107 0.1
R4106 0
ADMCLKI
1-A1, 2-A2
C 1/4, 2/4
①
V+3D
F4201 DTF1069- -T
IC4205 TC7WHU04FU-TRB
C4201 1
C4202 0.1
R4201 0
27MCLK
3-D1
C 3/4
IC4205 TC7WHU04FU-TRB
②
R4204 1M (S)
IC4205 TC7WHU04FU-TRB
L4201 VTL1079- -T
R4205 100 (S)
VMCLK
1-D2, 2-A2
C 1/4, 2/4
C 1/4
PCO 1-D2
R4213 0 (S)
V+3D
C4203 0.1
R4202 150k (S)
C4206 1 YB
IC4206
NJU7013F-TLB
R4206 100k (S)
V+3D
R4211 10k (S)
R4212 10k (S)
C4209 0.1
R4207 220 (S)
C4207 0.01
R4208 0 (S)
R4209 4.7k (S)
C4208 39p
D4201 MA2ZV05-TRB
L4202 LCYA1R2J2520-T 1.2μ
X4201 VSS1146- -T 27MHz
R4210 470 (S)
VC4201 10p VCM1012- -TRB
GNDD

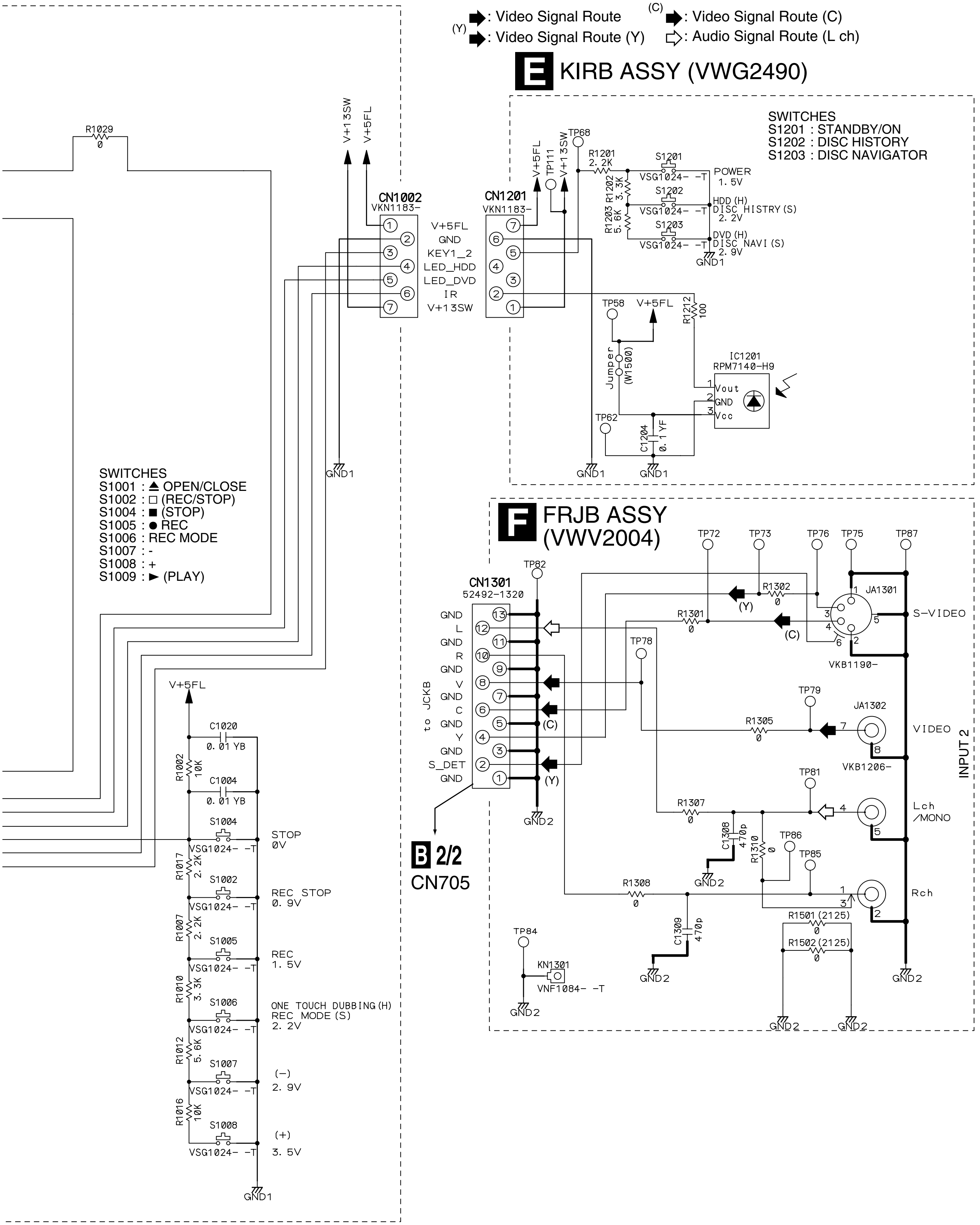
C 4/4 MAIN ASSY (VWV2007)

C 4/4

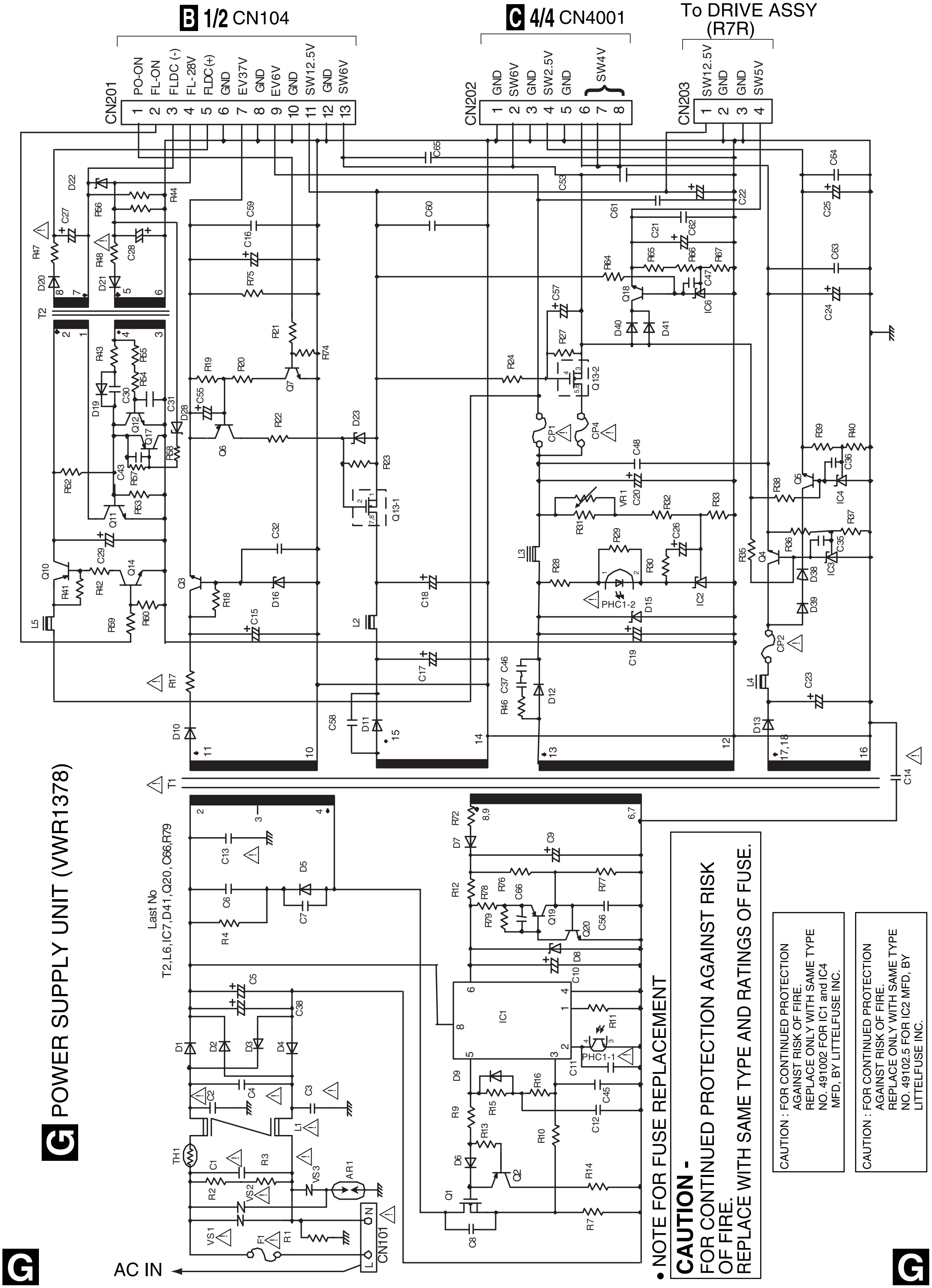

(AT) : ATA Data Signal Route
C 1/4
ATAPI BUS
(AT)
ATAPI
V+5D
C4401
GNDD
R4401 22K*4 RAB4CQ223J-T
R4404 22K*4 RAB4CQ223J-T
R4410 22K*4 RAB4CQ223J-T
R4416 22K*4 RAB4CQ223J-T
R4417 22K*4 RAB4CQ223J-T
R4423 22K*4 RAB4CQ223J-T
R4427 22K (S)
AT1RESET
AT1DATA7
AT1DATA8
AT1DATA6
AT1DATA9
AT1DATA5
AT1DATA10
AT1DATA4
AT1DATA11
AT1DATA3
AT1DATA12
AT1DATA2
AT1DATA13
AT1DATA1
AT1DATA14
AT1DATA0
AT1DATA15
AT1DIOW
AT1DIOR
AT1DMACK
AT1ADR1
AT1ADR0
AT1ADR2
AT1CS0
AT1CS1
R4402 82 (S)
R4405 RAB4CQ330J-T 33*4
R4406 RAB4CQ330J-T 33*4
R4407 RAB4CQ330J-T 33*4
R4408 RAB4CQ330J-T 33*4
AT1DMARQ
R4425 82 (S)
R4426 5.6K (S)
R4428 22 (S)
R4429 22 (S)
AT1IORDY
R4430 82 (S)
R4431 1K (S)
R4432 22 (S)
R4434 10K (S)
AT1INTRQ
R4433 82 (S)
R4435 33 (S)
R4436 RAB4CQ330J-T 33*4
To DRIVE ASSY (R7R)
VKN1811- -TFB
Primary ATA
CN4401
V+3D
R4503 0 (S)
C4501
R4502 RAB4CQ223J-T 22K*4
R4506 RAB4CQ223J-T 22K*4
R4512 RAB4CQ223J-T 22K*4
R4518 RAB4CQ223J-T 22K*4
R4519 RAB4CQ223J-T 22K*4
R4525 RAB4CQ223J-T 22K*4
R4529 22K (S)
AT2RESET
AT2DATA7
AT2DATA8
AT2DATA6
AT2DATA9
AT2DATA5
AT2DATA10
AT2DATA4
AT2DATA11
AT2DATA3
AT2DATA12
AT2DATA2
AT2DATA13
AT2DATA1
AT2DATA14
AT2DATA0
AT2DATA15
AT2DIOW
AT2DIOR
AT2DMACK
AT2ADR1
AT2ADR0
AT2ADR2
AT2CS0
AT2CS1
AT2DMARQ
R4527 82 (S)
R4528 5.6K (S)
AT2IORDY
R4532 82 (S)
R4533 1K (S)
AT2INTRQ
R4535 82 (S)
R4536 10K (S)
GNDD

3.10 FLKY, KIRB and FRJB ASSYS


D FLKY ASSY (VWG2489)
V1001
VAW1081-
COM1 COM2 COM3 COM4 COM5 COM6 COM7 COM8 COM9 COM10 COM11 COM12
S16 S15 S14 S13 S12 S11 S10 S9 S8 S7 S6 S5 S4 S3 S2 S1
TP2
C1001 0.01 YB
TP5
C1002 0.01 YB
GND1
TP6 TP7 TP8 TP9 TP10 TP11 TP12 TP13 TP14 TP15 TP16 TP17 TP18 TP19 TP20 TP21 TP22 TP23 TP24
TP25 TP26 TP27 TP28 TP29 TP30 TP31 TP32 TP33
V+5FL
R1005 0
C1011 1.0 YF
TP48 TP49 TP88 TP89 TP90 TP44 TP107 TP106 TP45
R1011 82k
R1013 220
R1014 220
R1015 220
IC1001
FL DRIVER
PT6315
/UPD16315GB-3S
VSS VDD GRID1 GRID2 GRID3 GRID4 GRID5 GRID6 GRID7 GRID8 GRID9
LED1 LED2 LED3 LED4 GRID10 GRID11 GRID12
OSC DOUT DIN CLK STB KEY1 KEY2
VEE SEG16 SEG15 SEG14 SEG13 SEG12 SEG11 SEG10
SEG1 SEG2 SEG3 SEG4 SEG5 SEG6 SEG7 SEG8 SEG9
FL
TP39
C1009 0.1 YF
C1010 22/35 JQ
TP50
TP52
C1006 0.1 YF
TP35 TP109
V-28V
V+13SW
CN1001
9607S-19F
B 1/2 CN201
FL-28V ①
FLDC- ②
FLDC+ ③
GND ④
LED_DVD ⑤
LED_HDD ⑥
KEY2 ⑦
IR ⑧
KEY1 ⑨
⑩
FLSTB ⑪
FLCLK ⑫
FLDATA ⑬
V+13SW ⑭
FLPON ⑮
GND ⑯
GND ⑰
V+5E ⑱
GND ⑲
V+5E
TP54
V+5FL
TP55
L1001 22
LAU220J-TA
C1012 100/6.3 JQ
C1013 0.1 YF
TP56
R1001 10K
C1003 0.01 YB
S1001
VSG1024- -T
OPEN/CLOSE
0V
R1006 2.2K
S1009
VSG1024- -T
PLAY
0.9V


➡: Video Signal Route
(Y) ➡: Video Signal Route (Y)
(C) ➡: Video Signal Route (C)
⇨: Audio Signal Route (L ch)
E KIRB ASSY (VWG2490)
SWITCHES
S1201 : STANDBY/ON
S1202 : DISC HISTORY
S1203 : DISC NAVIGATOR
R1029 0
V+13SW
V+5FL
CN1002 VKN1183-
V+5FL
GND
KEY1_2
LED_HDD
LED_DVD
IR
V+13SW
CN1201 VKN1183-
TP111
TP68
R1201 2.2K
R1202 3.3K
R1203 5.6K
S1201 VSG1024- -T
POWER 1.5V
S1202 VSG1024- -T
HDD (H) DISC HISTRY (S) 2.2V
S1203 VSG1024- -T
DVD (H) DISC NAVI (S) 2.9V
GND1
TP58
R1212 100
Jumper (W1500)
IC1201 RPM7140-H9
Vout
GND
Vcc
TP62
C1204 0.1 YF
SWITCHES
S1001 : ⏏ OPEN/CLOSE
S1002 : □ (REC/STOP)
S1004 : ■ (STOP)
S1005 : ● REC
S1006 : REC MODE
S1007 : -
S1008 : +
S1009 : ► (PLAY)
C1020 0.01 YB
R1002 10K
C1004 0.01 YB
S1004 VSG1024- -T
STOP 0V
R1017 2.2K
S1002 VSG1024- -T
REC STOP 0.9V
R1007 2.2K
S1005 VSG1024- -T
REC 1.5V
R1010 3.3K
S1006 VSG1024- -T
ONE TOUCH DUBBING (H) REC MODE (S) 2.2V
R1012 5.6K
S1007 VSG1024- -T
(−) 2.9V
R1016 10K
S1008 VSG1024- -T
(+) 3.5V
F FRJB ASSY (VWV2004)
TP72 TP73 TP76 TP75 TP87 TP82
CN1301 52492-1320
GND L GND R GND V GND C GND Y GND S_DET GND
to JCKB
B 2/2 CN705
GND2
R1302 0
R1301 0
JA1301
S-VIDEO
VKB1190-
TP78
TP79
JA1302
R1305 0
VIDEO
VKB1206-
INPUT 2
TP81
R1307 0
C1308 470p
R1310 0
Lch /MONO
TP86 TP85
R1308 0
Rch
C1309 470p
R1501 (2125) 0
R1502 (2125) 0
TP84
KN1301 VNF1084- -T
(Y) (C)

3.11 POWER SUPPLY UNIT



G POWER SUPPLY UNIT (VWR1378)
B 1/2 CN104
C 4/4 CN4001
To DRIVE ASSY (R7R)
CN201
1 PO-ON
2 FL-ON
3 FLDC (-)
4 FL-28V
5 FLDC (+)
6 GND
7 EV37V
8 GND
9 EV6V
10 GND
11 SW12.5V
12 GND
13 SW6V
CN202
1 GND
2 SW6V
3 GND
4 SW2.5V
5 GND
6
7 SW4V
8
CN203
1 SW12.5V
2 GND
3 GND
4 SW5V
T1
T2
IC1
PHC1-1
PHC1-2
CN101
AC IN
Last No
T2,L6,IC7,D41,Q20,C66,R79
G
G

• NOTE FOR FUSE REPLACEMENT

CAUTION -
FOR CONTINUED PROTECTION AGAINST RISK OF FIRE.
REPLACE WITH SAME TYPE AND RATINGS OF FUSE.

CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE.
REPLACE ONLY WITH SAME TYPE NO. 491002 FOR IC1 and IC4 MFD. BY LITTELFUSE INC.

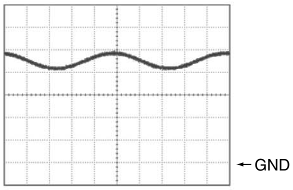
CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE.
REPLACE ONLY WITH SAME TYPE NO. 49102.5 FOR IC2 MFD. BY LITTELFUSE INC.

3.12 WAVE FORMS

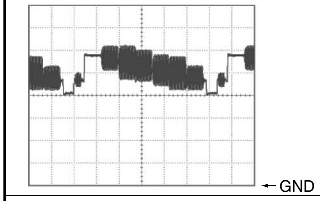
Note : The encircled numbers denote measuring point in the schematic diagram.

B JCKB ASSY

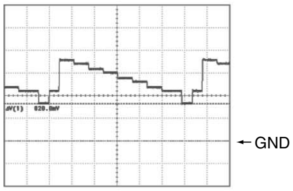
① **IC601-pin 11 (L4)**
(Function : Tuner 2 ch)
V: 1V/div. H: 200µsec/div.



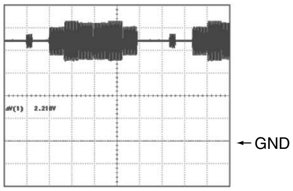
② **CN401-pin 3 (UVIN)**
(Function : Tuner 2 ch)
V: 500mV/div. H: 10µsec/div.



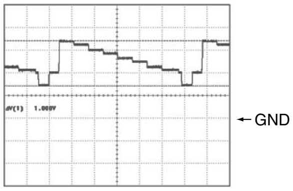
③ **IC701-pin 27 (YSWO)**
(Function : Line 1 Video in)
V: 500mV/div. H: 10µsec/div.



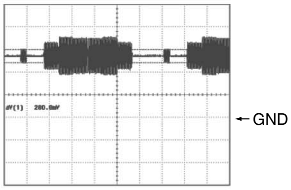
④ **IC701-pin 25 (CSWO)**
(Function : Line 1 Video in)
V: 500mV/div. H: 10µsec/div.



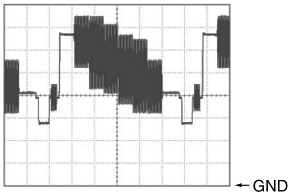
⑤ **CN701-pin 29 (YVMtoT)**
(Function : DVD play)
V: 500mV/div. H: 10µsec/div.



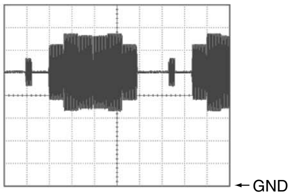
⑥ **CN701-pin 27 (CMtoT)**
(Function : DVD play)
V: 500mV/div. H: 10µsec/div.



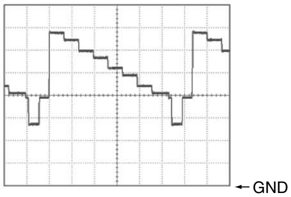
⑦ **IC701-pin 69 (VOUT)**
(Function : DVD play)
V: 500mV/div. H: 10µsec/div.



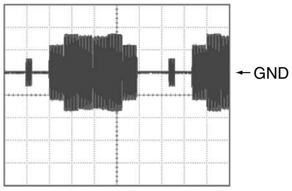
⑧ **IC701-pin 65 (COUT)**
(Function : DVD play)
V: 500mV/div. H: 10µsec/div.



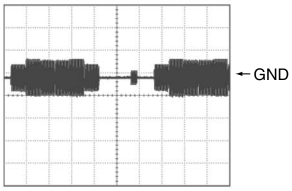
⑨ **IC701-pin 63 (YOUT)**
(Function : DVD play)
V: 500mV/div. H: 10µsec/div.



⑩ **JA702-pin 4 (COUT)**
(Function : DVD play)
V: 500mV/div. H: 10µsec/div.

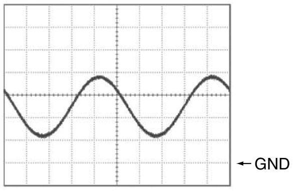


(Not terminated)

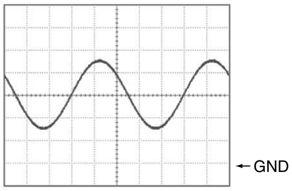


(75Ω terminated)

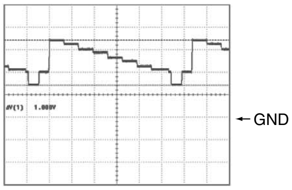
⑪ **CN701-pin 5 (ALTtoM)**
(Function : DVD play)
V: 1V/div. H: 200µsec/div.



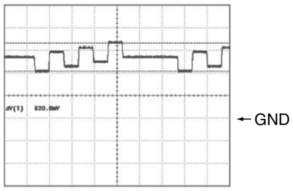
⑫ **CN701-pin 17 (ALMtoT)**
(Function : DVD play)
V: 2V/div. H: 200µsec/div.



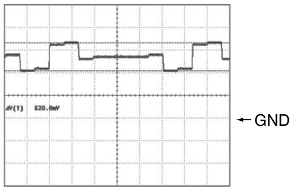
⑬ **CN701-pin 25 (YGMtoT)**
(Function : DVD play)
V: 500mV/div. H: 10µsec/div.



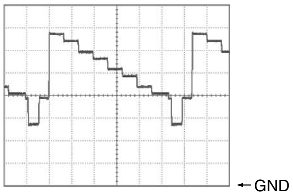
⑭ **CN701-pin 23 (CBBMtoT)**
(Function : DVD play)
V: 500mV/div. H: 10µsec/div.



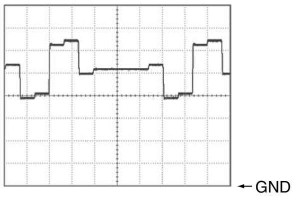
⑮ **CN701-pin 21 (CRRMtoT)**
(Function : DVD play)
V: 500mV/div. H: 10µsec/div.



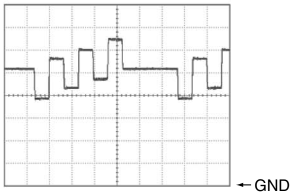
⑯ **IC701-pin 60 (PYRSCOUT)**
(Function : DVD play)
V: 500mV/div. H: 10µsec/div.



⑰ **IC701-pin 58 (CRGOUT)**
(Function : DVD play)
V: 500mV/div. H: 10µsec/div.



⑱ **IC701-pin 56 (CBBOUT)**
(Function : DVD play)
V: 500mV/div. H: 10µsec/div.

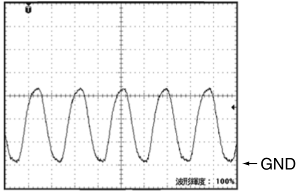


C MAIN ASSY

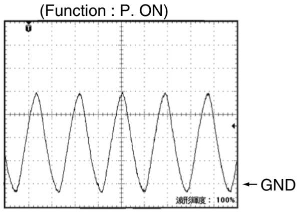
Measurement condition ;

No.3 to No.8, No.10 to No.13	: 75% Color-bar, A1 disc 2-20
No.15 ,No.16	: 75% Color-bar
No.9, No.14	: 1kHz, 2Vrms, A1 disc 2-1
No.17	: 1kHz, 2Vrms

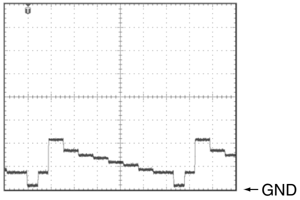
① **X4102 - pin 4 (ADMCLKI)**
V: 1V/div. H: 20nsec/div.
(Function : P.ON)



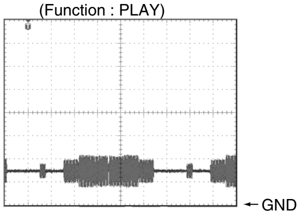
② **R4205 (VMCLK)**
V: 1V/div. H: 20nsec/div.
(Function : P. ON)



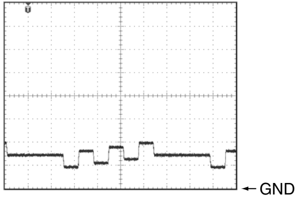
③ **Q2103 - B (Y)**
V: 500mV/div. H: 10µsec/div.
(Function : PLAY)



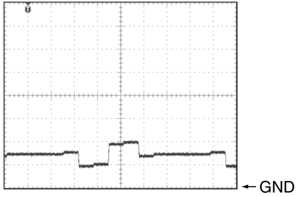
④ **Q2102 - B (C)**
V: 500mV/div. H: 10µsec/div.
(Function : PLAY)



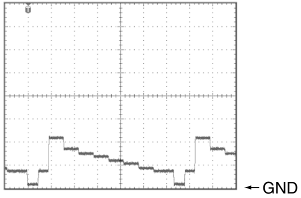
⑤ **Q2104 - B (Cb)**
V: 500mV/div. H: 10µsec/div.
(Function : PLAY)



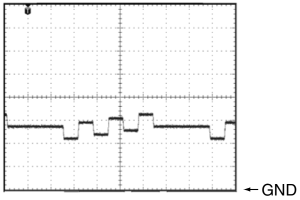
⑥ **Q2105 - B (Cr)**
V: 500mV/div. H: 10µsec/div.
(Function : PLAY)



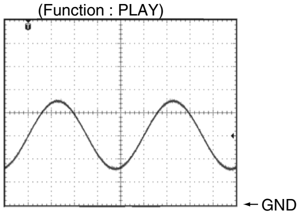
⑦ **Q2101 - B (Y)**
V: 500mV/div. H: 10µsec/div.
(Function : PLAY)



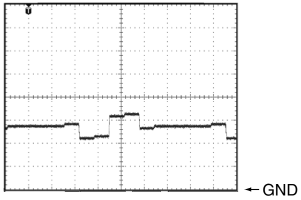
⑧ **CN2001-pin 23 (Cb Out)**
V: 500mV/div. H: 10µsec/div.
(Function : PLAY)



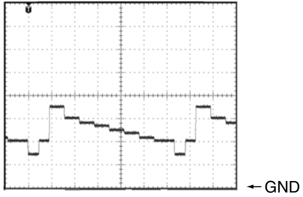
⑨ **CN2001-pin 17 (Lch Out)**
V: 2V/div. H: 200µsec/div.
(Function : PLAY)



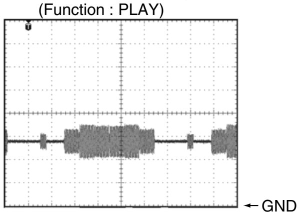
⑩ **CN2001-pin 21 (Cr Out)**
V: 500mV/div. H: 10µsec/div.
(Function : PLAY)



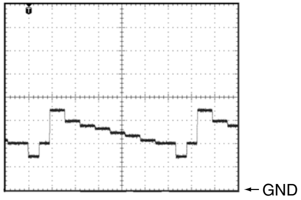
⑪ **CN2001-pin 29 (Y Out)**
V: 500mV/div. H: 10µsec/div.
(Function : PLAY)



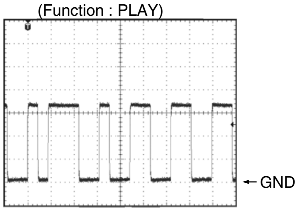
⑫ **CN2001-pin 27 (C Out)**
V: 500mV/div. H: 10µsec/div.
(Function : PLAY)



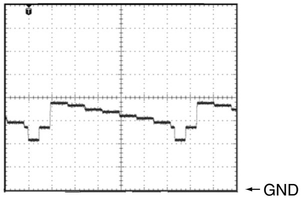
⑬ **CN2001-pin 25 (Y Out)**
V: 500mV/div. H: 10µsec/div.
(Function : PLAY)



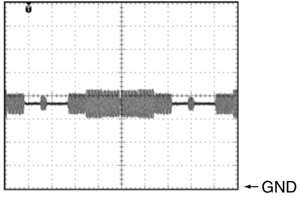
⑭ **CN3001-pin 13 (PCMAIN)**
V: 1V/div. H: 400nsec/div.
(Function : PLAY)



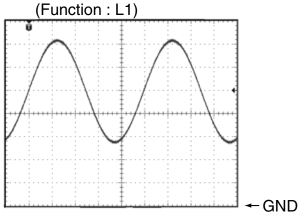
⑮ **CN2001-pin 9 (SEL Y/V)**
V: 500mV/div. H: 10µsec/div.
(Function : L1)



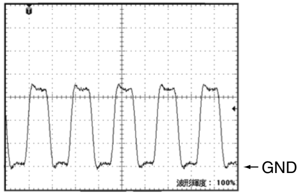
⑯ **CN2001-pin 7 (SEL C)**
V: 500mV/div. H: 10µsec/div.
(Function : L1)



⑰ **CN2001-pin 5 (SEL L)**
V: 500mV/div. H: 200µsec/div.
(Function : L1)



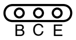
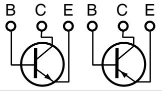
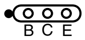
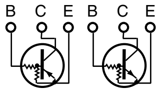
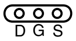
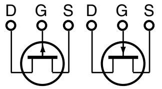
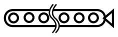
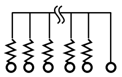
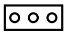
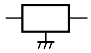
⑱ **IC3402-pin 7 (27MCLK)**
V: 1V/div. H: 20nsec/div.
(Function : P.ON)



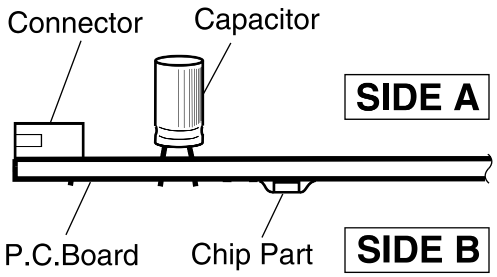
4. PCB CONNECTION DIAGRAM

NOTE FOR PCB DIAGRAMS :

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3-terminal regulator

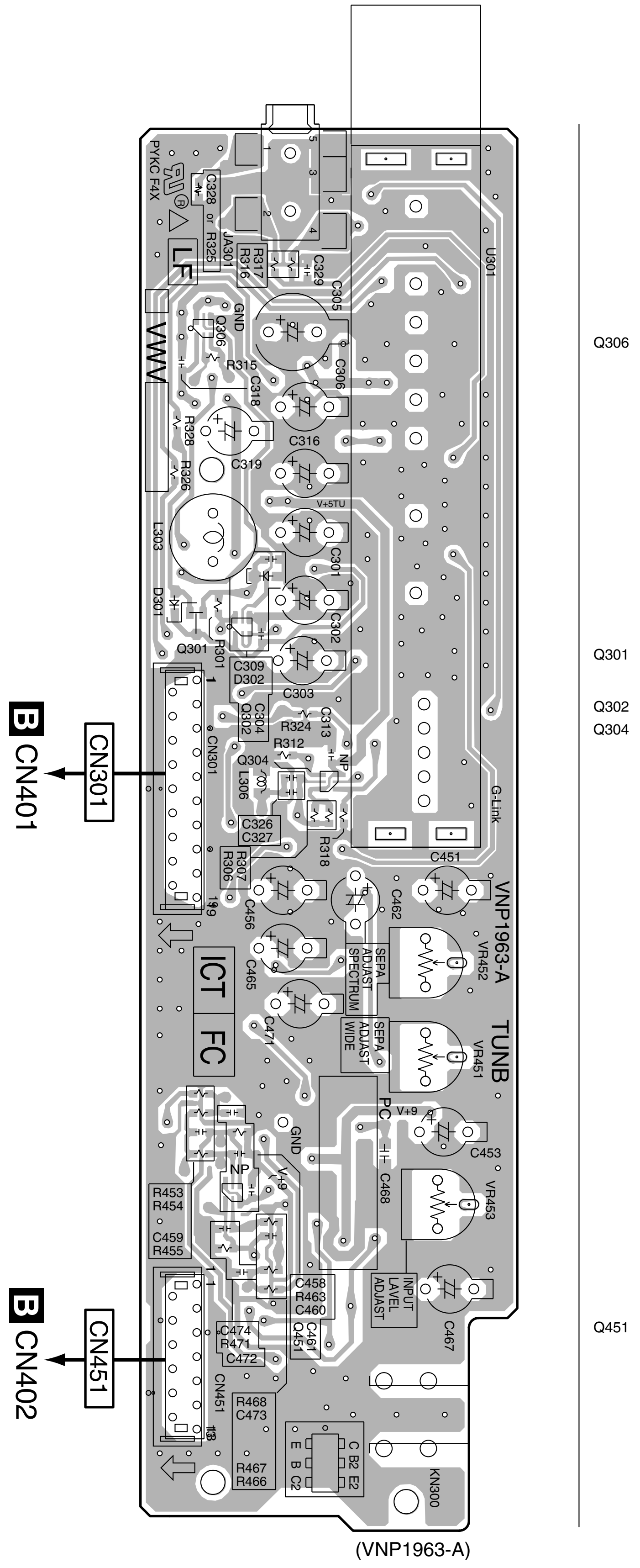
3. The parts mounted on this PCB include all necessary parts for several destinations.
   For further information for respective destinations, be sure to check with the schematic diagram.
4. View point of PCB diagrams.


Connector
Capacitor
SIDE A
P.C.Board
Chip Part
SIDE B

4.1 TUNB ASSY

SIDE A **SIDE A**

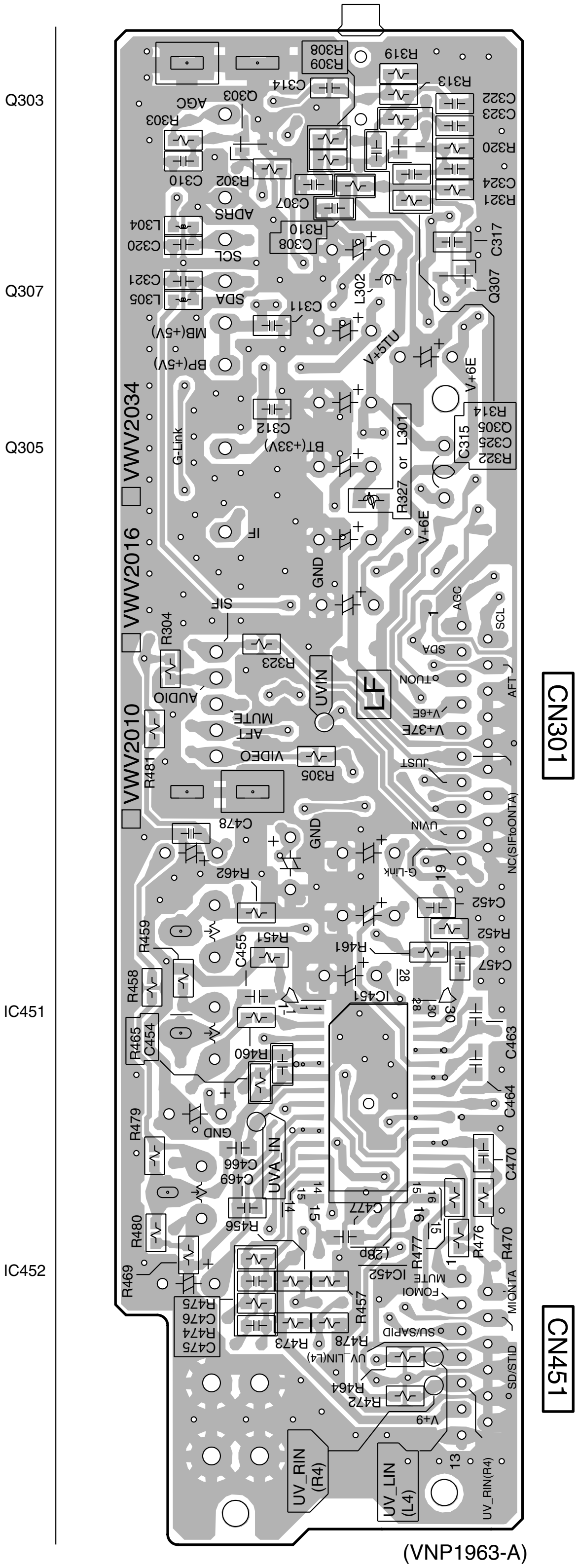
A TUNB ASSY


B CN401
CN301
B CN402
CN451
Q306
Q301
Q302
Q304
Q451
PYKC F4X
C328 or R325
JA301
LF
R317
R316
C329
C305
U301
GND
Q306
R315
C318
C306
R328
C316
C319
R326
V+5TU
L303
C301
D301
C302
Q301
R301
C309
D302
C303
C304
Q302
R324
C313
CN301
R312
NP
Q304
L306
C326
C327
R318
G-Link
R307
R306
C451
C456
C462
VNP1963-A
ICT
FC
C465
SEPA ADJUST SPECTRUM
VR452
C471
SEPA ADJUST WIDE
VR451
TUNB
PC
V+9
GND
C453
NP
C468
VR453
R453
R454
C459
R455
C458
R463
C460
INPUT LEVEL ADJUST
C467
C474
R471
C472
C461
Q451
CN451
R468
C473
R467
R466
C B2 E2
E B C2
KN300

(VNP1963-A)

SIDE B **SIDE B**

A TUNB ASSY

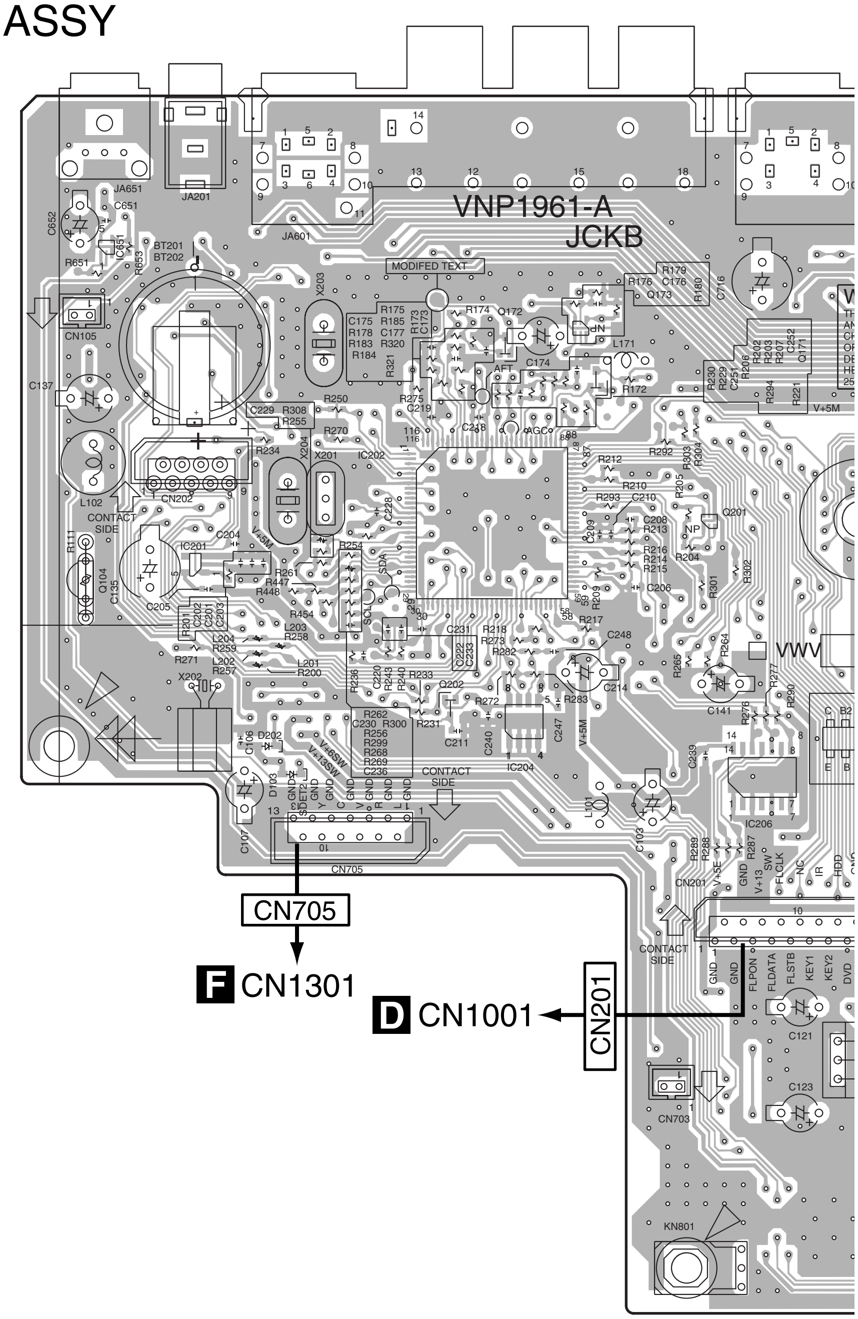

Q303
Q307
Q305
IC451
IC452
CN301
CN451
VWV2034
VWV2016
VWV2010
LF
UVIN
AGC
ADRS
SCL
SDA
MB(+5V)
BP(+5V)
BT(+33V)
IF
SIF
GND
AUDIO
MUTE
AFT
VIDEO
V+5TU
V+6E
V+37E
G-Link
UVA IN
UV_RIN (R4)
UV_LIN (L4)
(VNP1963-A)

4.2 JCKB ASSY

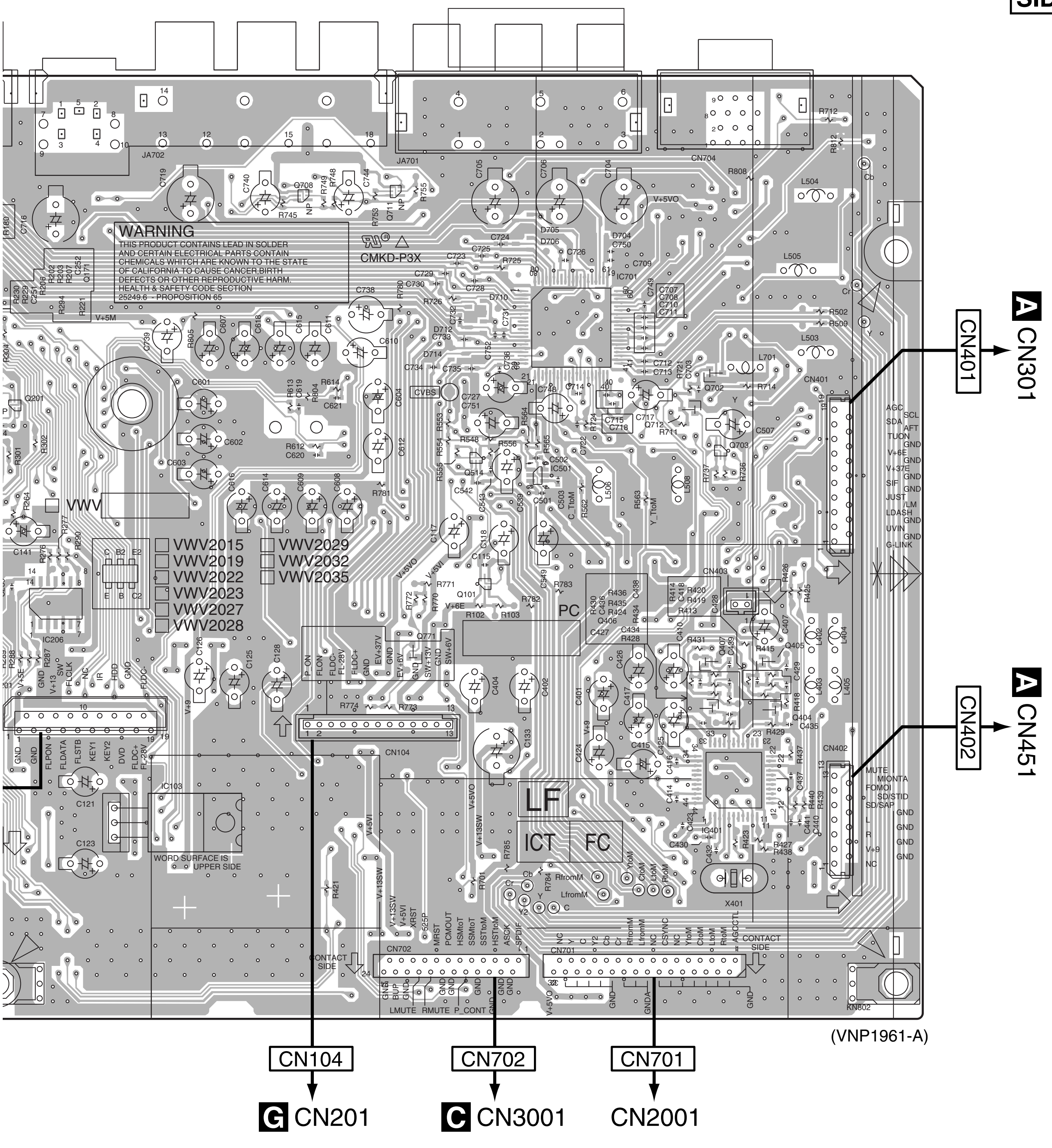
SIDE A

IC651 Q708
Q711
Q173
Q172
IC701 Q171
IC202
Q702
Q201
IC201 Q712
Q703
Q104
IC501
Q514
Q202
IC204
Q101
IC206 Q406
Q771
Q405
Q407
Q404
IC103
IC401

B JCKB ASSY


VNP1961-A
JCKB
MODIFIED TEXT
JA651
JA201
JA601
CN105
BT201
BT202
X203
X204
X201
IC202
CN202
CONTACT SIDE
IC201
Q104
C135
X202
D202
D103
V+6SW
V+13SW
CN705
CONTACT SIDE
GND
SDET2
GND
Y
GND
C
GND
V
GND
R
GND
L
GND
SDA
SCL
AGC
AFT
Q172
Q173
Q171
Q201
Q202
IC204
IC206
V+5M
NP
VWV
L171
L101
CN201
V+5E
V+13
SW
FLCLK
NC
IR
HDD
CONTACT SIDE
GND
GND
FLPON
FLDATA
FLSTB
KEY1
KEY2
DVD
C121
C123
CN703
KN801
CN705
F CN1301
D CN1001
CN201

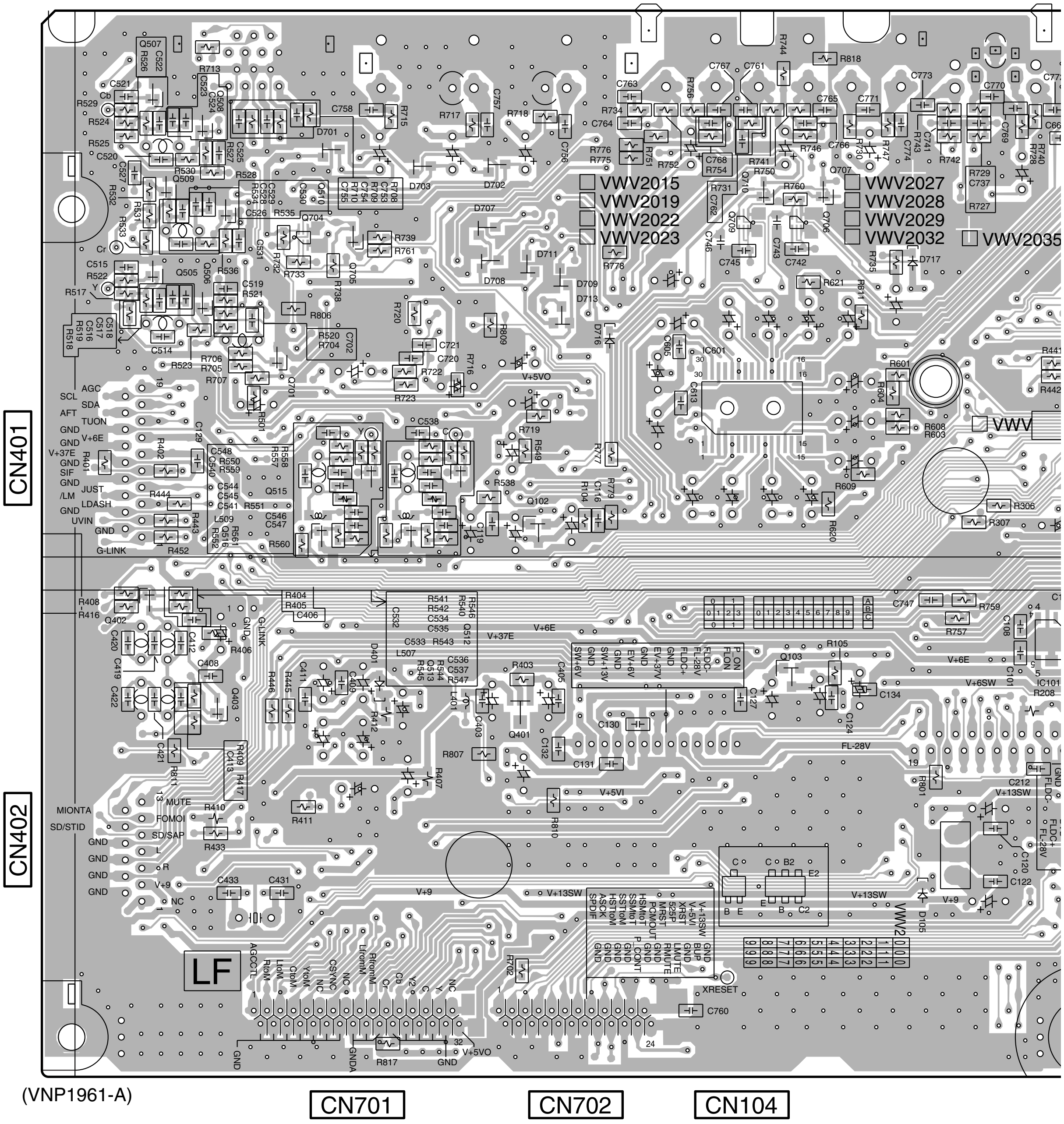
SIDE A


WARNING
THIS PRODUCT CONTAINS LEAD IN SOLDER AND CERTAIN ELECTRICAL PARTS CONTAIN CHEMICALS WHITCH ARE KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER,BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM. HEALTH & SAFETY CODE SECTION 25249.6 - PROPOSITION 65
CMKD-P3X
JA702
JA701
CN704
IC701
IC401
IC103
IC206
CN401
CN402
CN403
CN104
CN702
CN701
X401
KN802
VWV2015
VWV2019
VWV2022
VWV2023
VWV2027
VWV2028
VWV2029
VWV2032
VWV2035
PC
LF
ICT
FC
WORD SURFACE IS UPPER SIDE
CONTACT SIDE
(VNP1961-A)
CN401
A CN301
CN402
A CN451
CN104
G CN201
CN702
C CN3001
CN701
CN2001

B

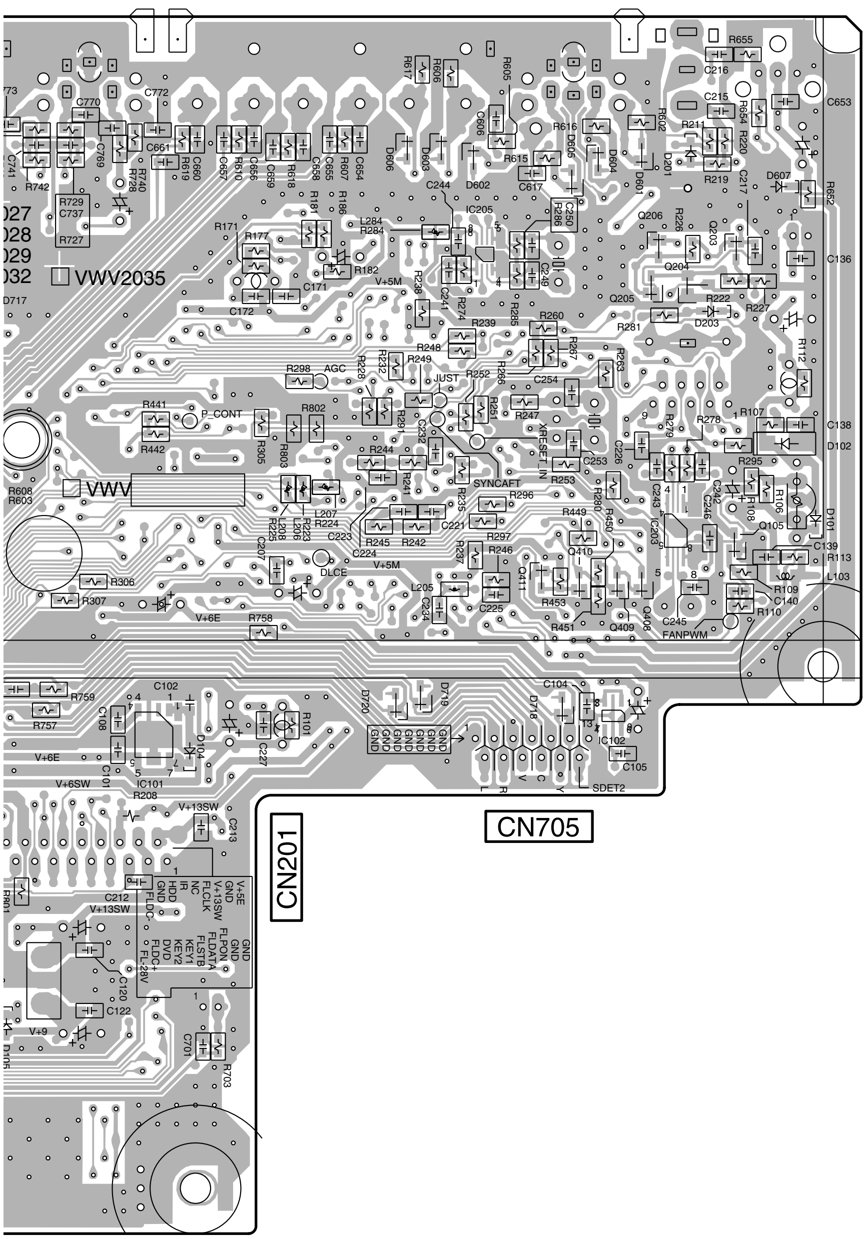
SIDE B

B JCKB ASSY


CN401
CN402
CN701
CN702
CN104
(VNP1961-A)
LF
VWV2015
VWV2019
VWV2022
VWV2023
VWV2027
VWV2028
VWV2029
VWV2032
VWV2035
IC601
IC101
Q507
Q509
Q505
Q506
Q515
Q516
Q512
Q513
Q402
Q403
Q401
Q102
Q103
Q701
Q704
Q705
Q706
Q707
Q709
Q710
D701
D702
D703
D707
D708
D709
D711
D713
D716
D717
D401
D105
L401
L507
L509
AGC
SCL
SDA
AFT
TUON
GND
V+6E
V+37E
SIF
JUST
/LM
LDASH
UVIN
G-LINK
MIONTA
SD/STID
MUTE
FOMOI
SD/SAP
L
R
V+9
NC
V+37E
V+6E
V+5VO
V+5VI
V+13SW
V+6SW
FL-28V
FLDC-
FLDC+
XRESET
AGCCTL
RtoM
LtoM
CtoM
YtoM
CSYNC
LfromM
RfromM
GND
GNDA
SW+6V
SW+13V
EV+6V
EV+37V
P.ON
FLON
SPDIF
ASCK
LRCK
HSMoT
SSMoT
PCMOUT
MRST
XRST
RMUTE
LMUTE
BUP
V+5VI
V+13SW
R817
C760
R702
C747
R759
R757
C134
R208
C212
C120
C122
R601
R604
R608
R603
R609
R620
R306
R307
R441
R442

SIDE B

A


CN705
CN201
VWV2035
VWV
C770
C772
C769
C661
C741
R742
R740
R728
R729
C737
R727
R619
C660
C657
R610
C656
C659
R618
C658
R607
C655
C654
R617
R606
R605
D606
D603
C606
R616
D605
D604
R602
R615
C617
C244
D602
IC205
L284
R284
R286
C250
C249
R655
C216
C215
R211
R654
R220
R219
C217
D607
R652
C653
D601
D201
Q206
R226
Q203
Q204
C136
R171
R177
R181
R186
R182
C171
C172
V+5M
R236
C241
R274
R285
Q205
R222
D203
R227
R281
R239
R260
R287
R263
R112
R248
R249
R232
R228
R298
AGC
JUST
R252
R266
C254
R441
P_CONT
R442
R802
R305
R803
R291
C232
R251
R247
XRESET_IN
R107
R278
R279
C138
D102
C226
C253
R244
R241
R295
R608
R603
SYNCAFT
R253
C243
C242
C246
R108
R106
R208
R225
R223
L207
R224
C223
R235
R296
R449
R280
R450
IC203
D101
Q105
C139
R113
L103
C207
R245
R242
C221
R297
R237
R246
Q410
C224
DLCE
V+5M
Q411
R109
C140
R110
R306
R307
L205
C234
C225
R453
R451
Q409
Q408
C245
FANPWM
V+6E
R758
R759
R757
C102
C108
D104
R101
C227
D720
D719
D718
C104
IC102
C105
GND
SDET2
V+6E
V+6SW
C101
IC101
V+13SW
C213
C212
V+13SW
C120
C122
V+9
C701
R703
V-5E
GND
V+13SW
FLCLK
NC
IR
HDD
GND
GND
FLDC-
FLPON
FLDATA
FLSTB
KEY1
KEY2
DVD
FLDC+
FL-28V
GND
GND

B

	Q507
	Q508
IC205	Q710 Q707 Q509 Q510 Q206 Q203 Q709 Q706 Q704 Q204 Q506 Q705 Q205 Q505
IC601	
	Q701
	Q105
IC203	Q410 Q515 Q102 Q411
	Q516 Q408
	Q409
	Q402 Q512
IC102	Q513 Q103
IC101	Q403
	Q401

C

D

E

F

B

4.3 MAIN ASSY

SIDE A

C MAIN ASSY

A

IC4007

IC5101

B

Q1102

IC5202

IC4101

Q2105
Q2104
Q2311

C

Q2101
Q2102
Q2302
Q2312

Q2301
Q2103

IC5204

IC3301

Q2201
Q2222

Q2202

D

IC4008
Q2203
IC3403
IC3402

IC4206
IC4205
IC3101
IC4004
IC2331

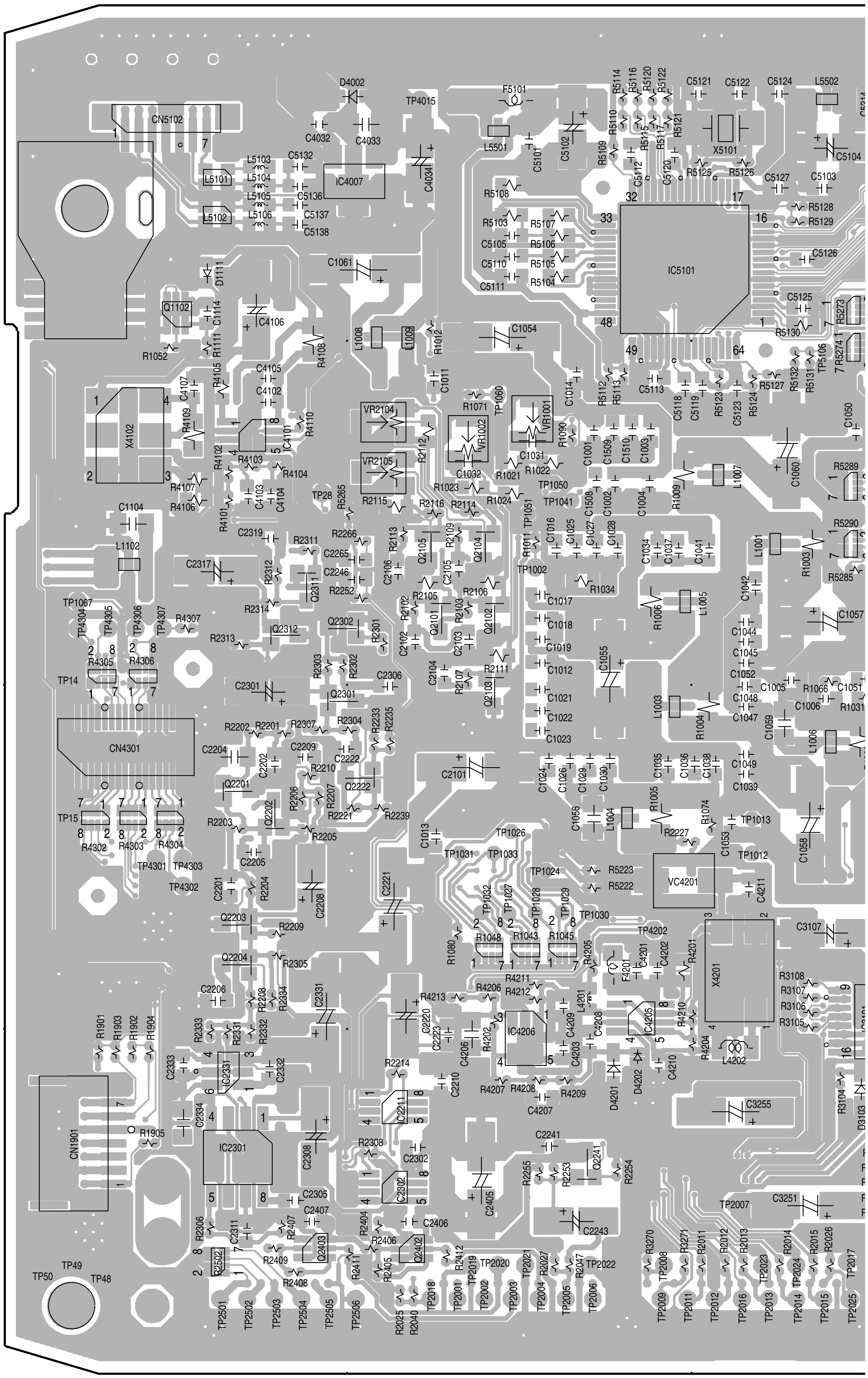
E

IC2211

IC2301
Q2241
Q3201 Q3202

IC2302
IC4003 IC4005
IC3001
Q2403 Q2402
Q2001

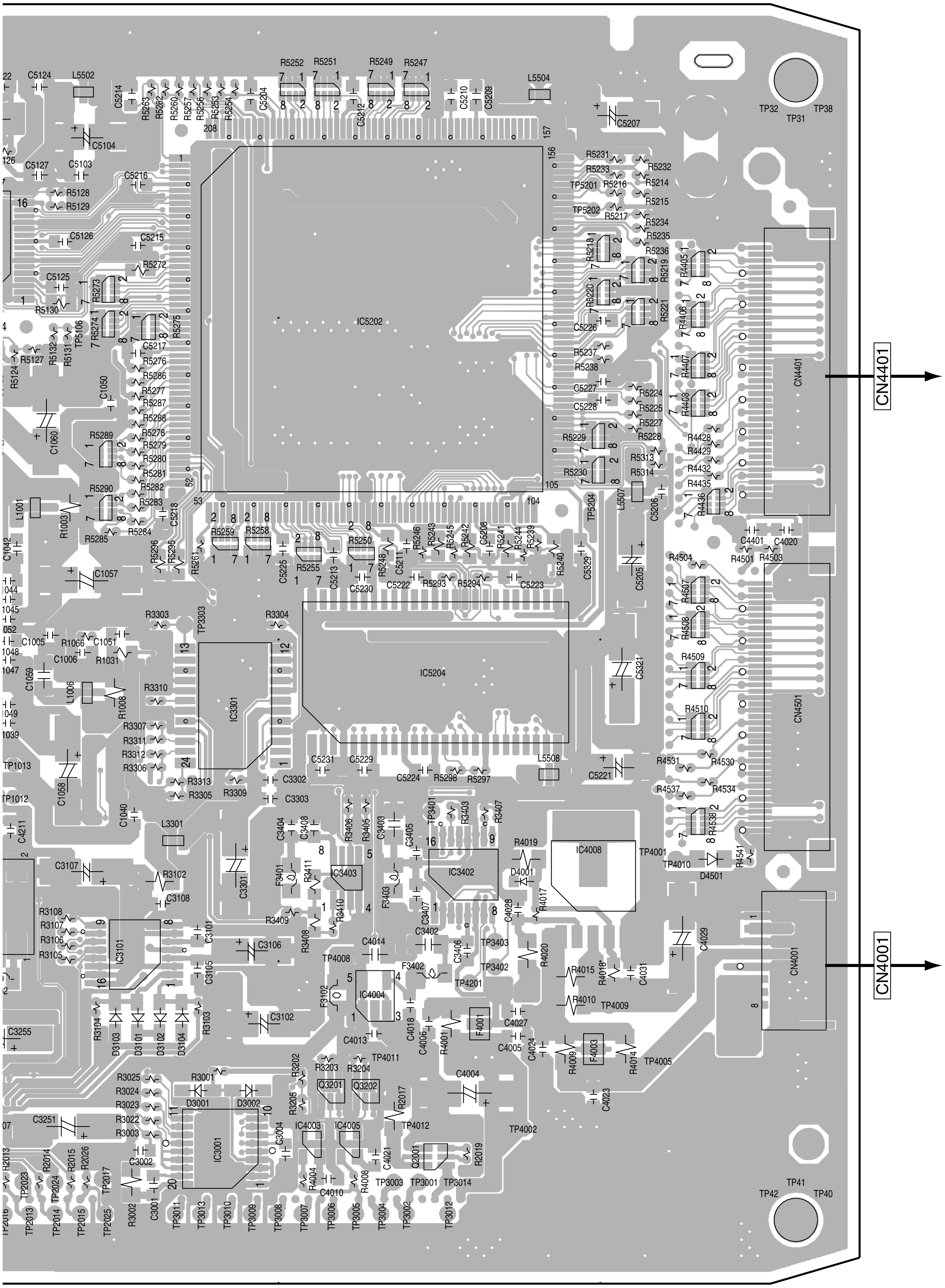
F



CN5102
IC4007
L5101
L5102
D4002
TP4015
F5101
L5501
L5502
X5101
IC5101
Q1102
C4106
C1061
C1054
X4102
VR2104
VR2105
VR1002
VR1001
L1102
C1104
TP1067
TP4304
TP4305
TP4306
TP4307
R4305
R4306
TP14
CN4301
TP15
R4302
R4303
R4304
TP4301
TP4303
TP4302
Q2301
Q2302
Q2312
Q2201
Q2202
Q2222
Q2203
Q2204
C2101
C1055
VC4201
X4201
IC4206
IC2331
IC2301
IC2211
IC2302
CN1901
Q2403
Q2402
Q2241
TP49
TP50
TP48
TP2501
TP2502
TP2503
TP2504
TP2505
TP2506

SIDE A

This PCB is six layer structure.


IC5202
IC5204
IC3301
IC3101
IC3001
IC3402
IC3403
IC4004
IC4008
IC4003
IC4005
Q3201
Q3202
Q2001
CN4401
CN4501
CN4001
L5502
L5504
L5507
L5508
L3301
L1001
L1006
D3001
D3002
D4001
D4501
D3101
D3102
D3103
D3104
F4001
F4003
TP32
TP31
TP38
TP41
TP42
TP40
TP5201
TP5202
TP5204
TP5106
TP3303
TP3401
TP3402
TP3403
TP4001
TP4002
TP4005
TP4008
TP4009
TP4010
TP4011
TP4012
TP4201
TP1012
TP1013
TP3001
TP3003
TP3014
208
157
156
105
104
53
52
1

to DRIVE ASSY R7R

G CN202

(VNP1960-C)

SIDE B

C MAIN ASSY

A

IC1103
IC1104

IC1301

B

IC5301

IC5341

IC1421
IC1102

C

IC4006

IC5321
IC1001

IC5322
IC1401

D

IC5002
IC1101

IC3201

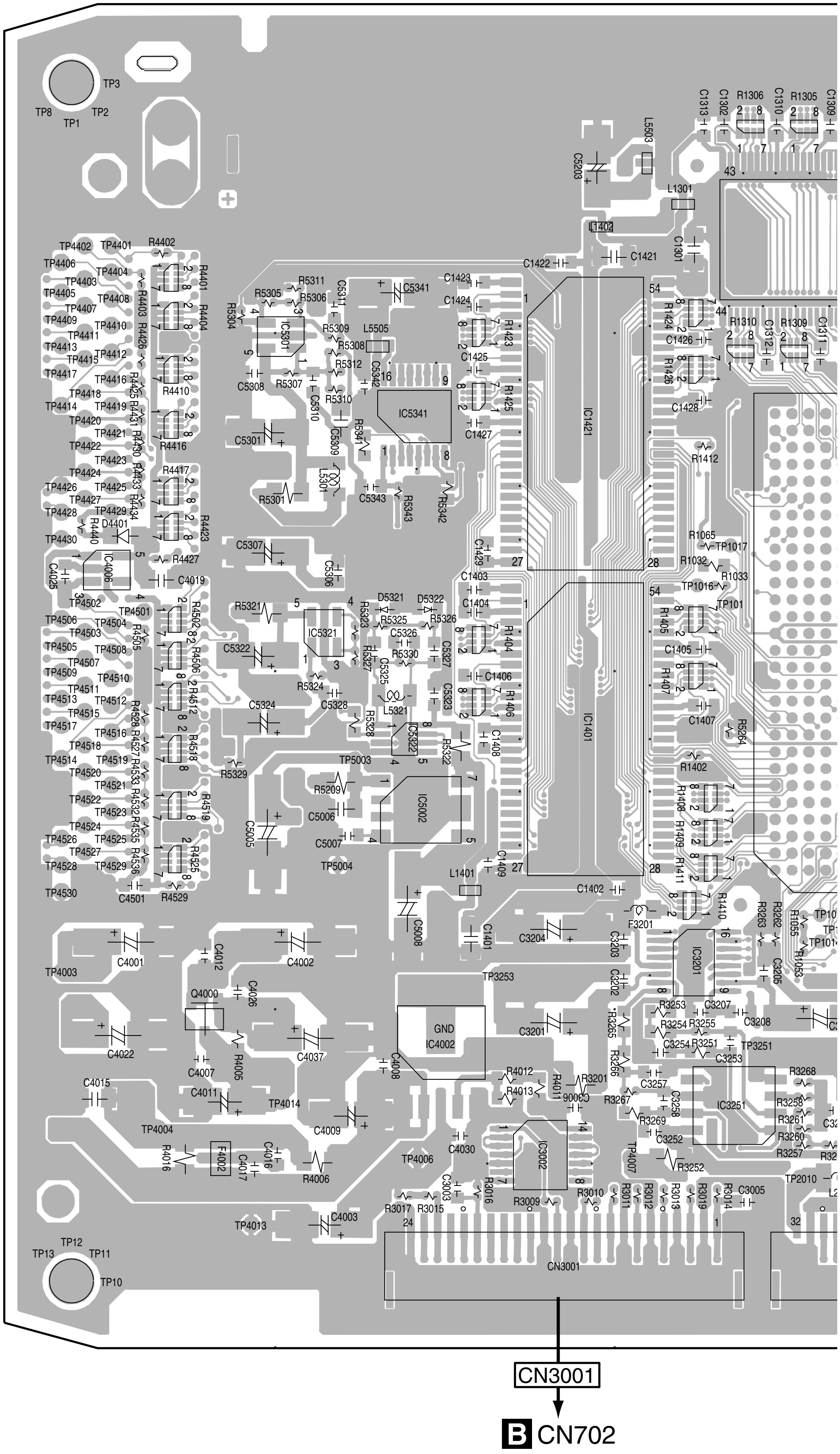
Q4000

IC4002
IC1201
IC2501

E

IC3251

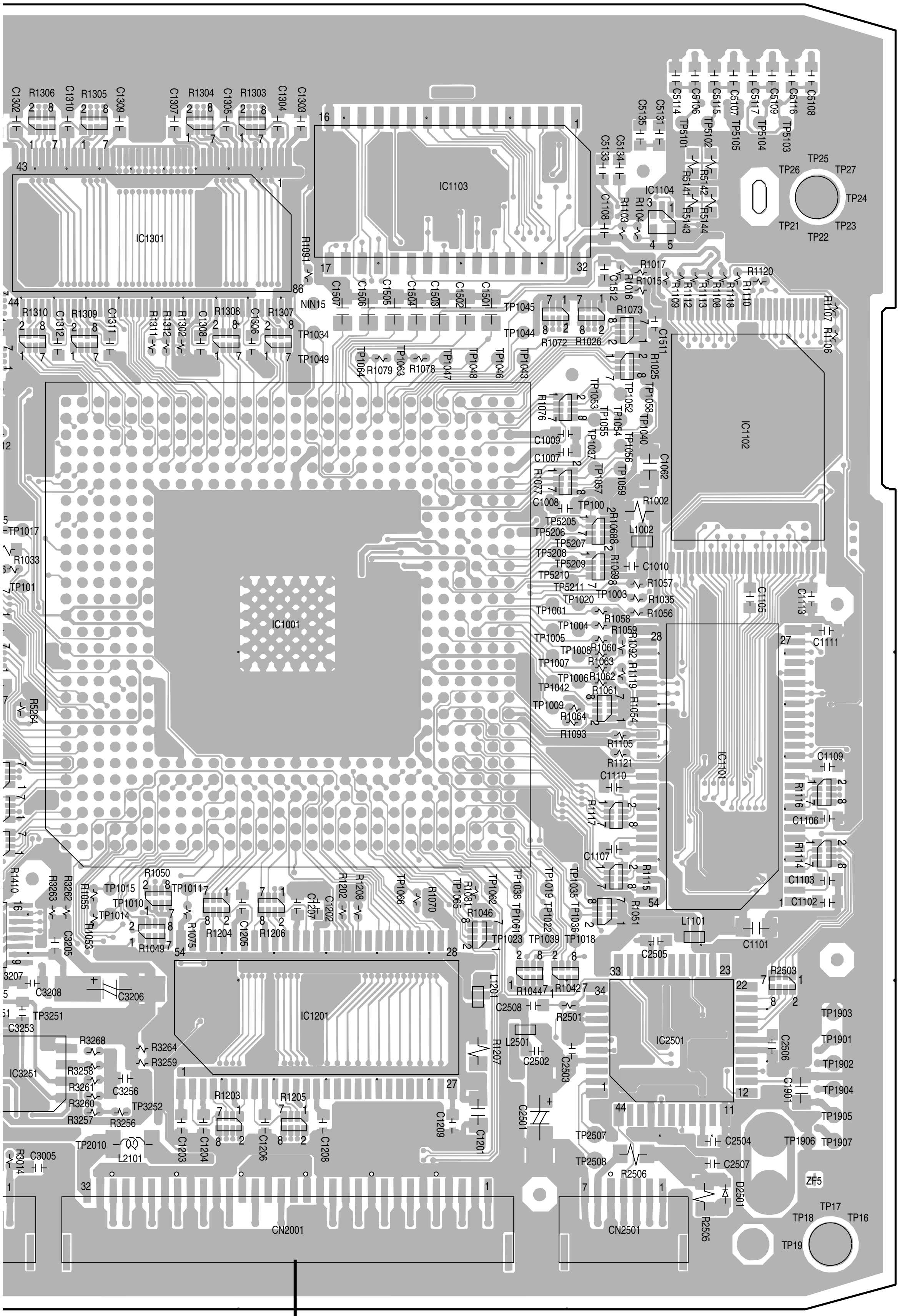
IC3002


IC1421
IC1401
IC5301
IC5341
IC5321
IC5322
IC5002
IC4006
IC4002
GND
IC3201
IC3251
IC3002
Q4000
CN3001
CN3001
B CN702
TP1
TP2
TP3
TP8
TP10
TP11
TP12
TP13
F3201
F4002
L1401
L1402
L1301
L5503
L5505
L5301
L5321

F

SIDE B

This PCB is six layer structure.


IC1301
IC1103
IC1104
IC1102
IC1001
IC1101
IC1201
IC2501
IC3251
CN2001
CN2501
L1002
L1101
L1201
L2101
L2501
D2501
ZF5
TP17
TP16
TP18
TP19
TP21
TP22
TP23
TP24
TP25
TP26
TP27
NIN15

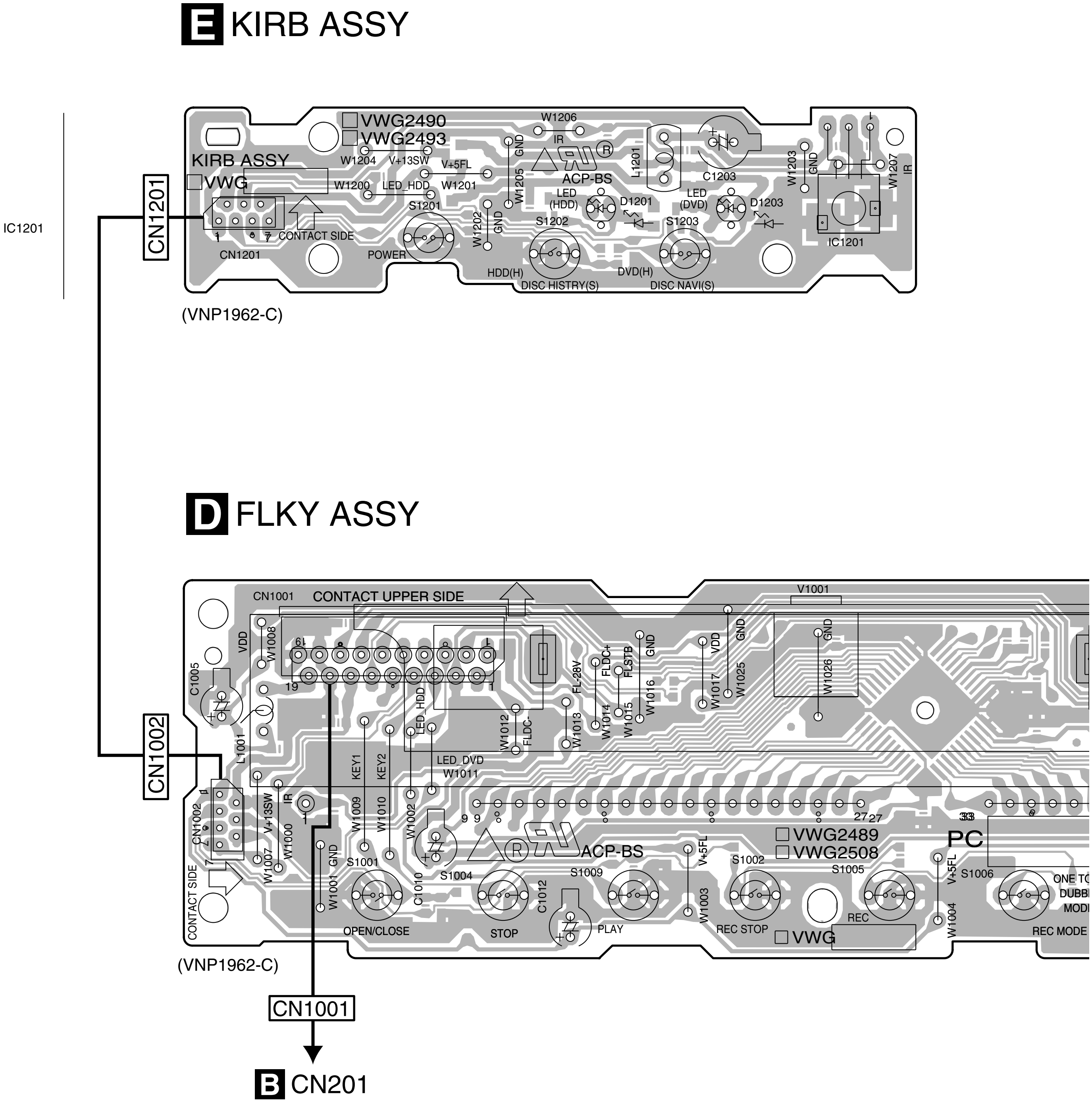
CN2001

B CN701

(VNP1960-C)

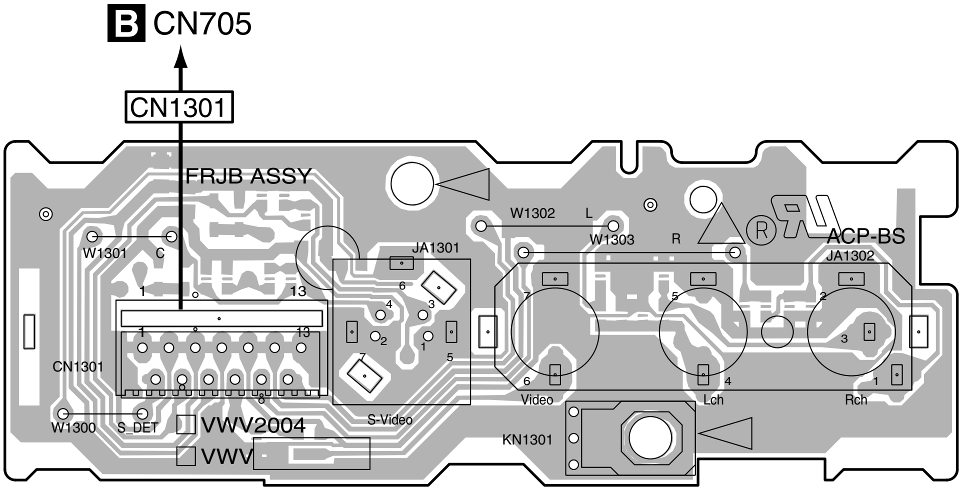
4.4 FLKY, KIRB and FRJB ASSYS

SIDE A

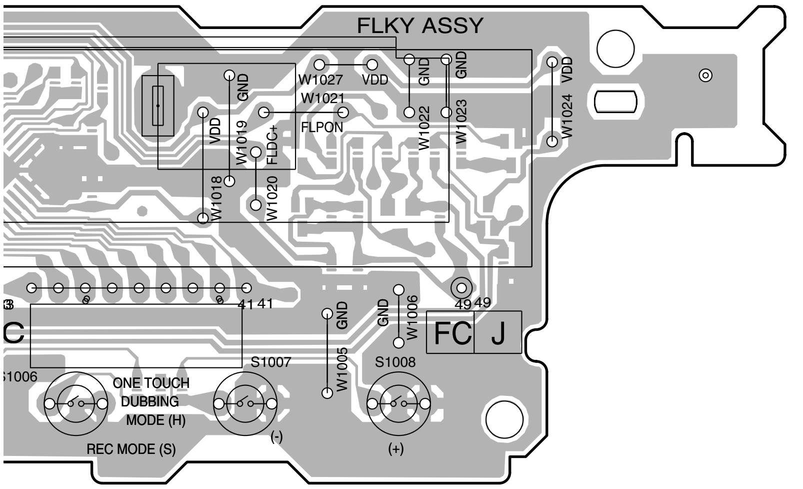

E KIRB ASSY
KIRB ASSY
VWG
VWG2490
VWG2493
W1204
V+13SW
V+5FL
W1206
IR
GND
W1200
LED_HDD
W1201
W1205
ACP-BS
L1201
C1203
W1203
GND
W1207
IR
CN1201
CONTACT SIDE
S1201
POWER
W1202
GND
LED (HDD)
D1201
S1202
LED (DVD)
D1203
S1203
IC1201
HDD(H)
DISC HISTRY(S)
DVD(H)
DISC NAVI(S)
(VNP1962-C)
CN1201
IC1201
D FLKY ASSY
CN1001
CONTACT UPPER SIDE
V1001
VDD
W1008
C1005
19
1
LED_HDD
FL-28V
FLDC+
FLSTB
GND
W1012
FLDC-
W1013
W1014
W1015
W1016
W1017
VDD
W1025
GND
W1026
L1001
KEY1
KEY2
LED_DVD
W1011
CN1002
CONTACT SIDE
W1007
V+13SW
W1000
IR
W1009
W1010
W1002
W1001
GND
S1001
OPEN/CLOSE
C1010
S1004
STOP
C1012
PLAY
ACP-BS
S1009
V+5FL
W1003
S1002
REC STOP
VWG2489
VWG2508
VWG
S1005
REC
27
33
PC
V+5FL
W1004
S1006
ONE TO DUBBI MODE
REC MODE
(VNP1962-C)
CN1002
CN1001
B CN201

SIDE A

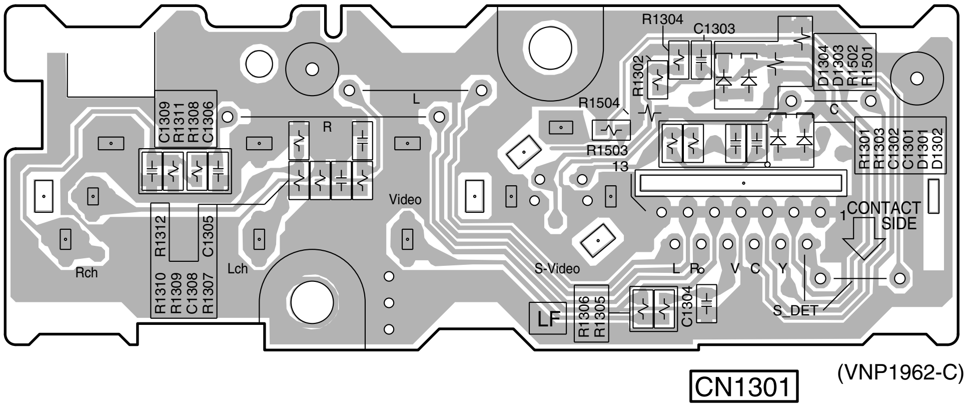
F FRJB ASSY


B CN705
CN1301
FRJB ASSY
W1301
C
W1302
L
W1303
R
ACP-BS
JA1301
JA1302
1
13
CN1301
W1300
S_DET
VWV2004
VWV
S-Video
Video
Lch
Rch
KN1301
1
2
3
4
5
6
7

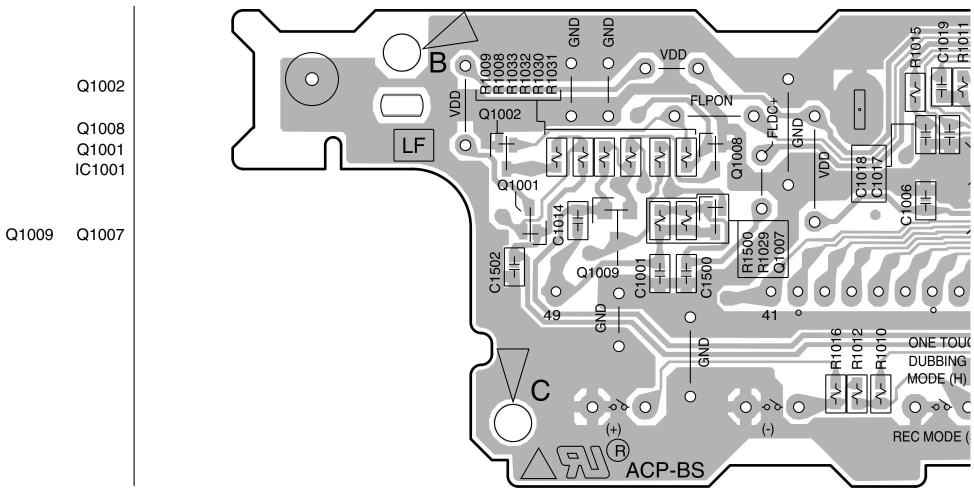
(VNP1962-C)


FLKY ASSY
W1027
VDD
W1021
FLPON
GND
VDD
W1019
FLDC+
W1018
W1020
W1022
W1023
W1024
GND
41
49
FC
J
C
GND
W1005
GND
W1006
S1006
S1007
S1008
ONE TOUCH
DUBBING
MODE (H)
REC MODE (S)
(-)
(+)

F FRJB ASSY

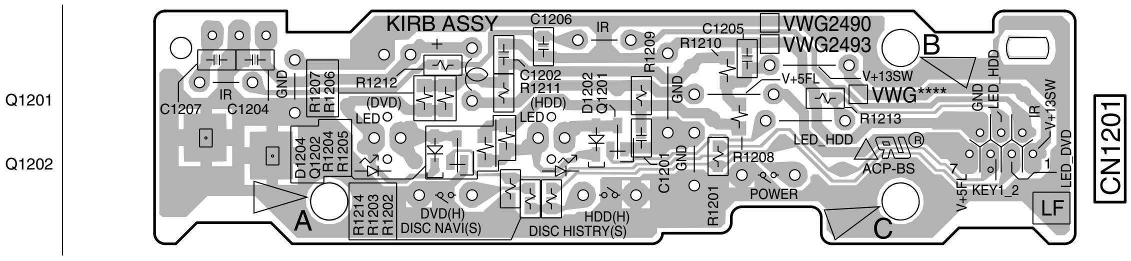

R1304
C1303
R1302
D1304
D1303
R1502
R1501
R1504
R1503
13
C
R1301
R1303
C1302
C1301
D1301
D1302
C1309
R1311
R1308
C1306
L
R
Video
R1312
C1305
Rch
Lch
R1310
R1309
C1308
R1307
S-Video
CONTACT SIDE
1
L
R
V
C
Y
S_DET
LF
R1306
R1305
C1304
CN1301
(VNP1962-C)

D FLKY ASSY

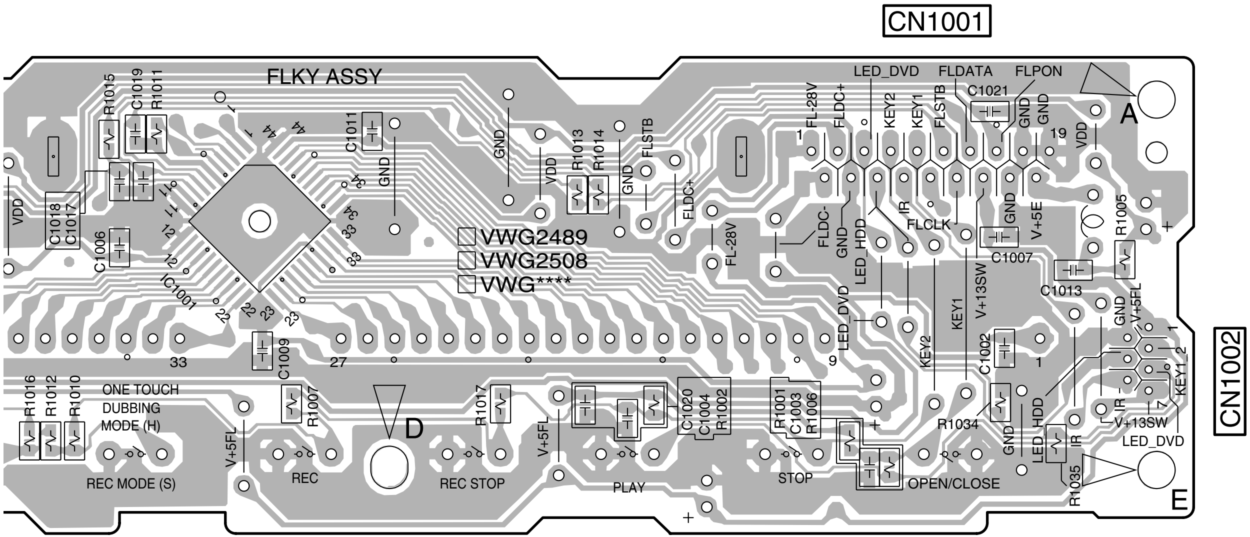

Q1002
Q1008
Q1001
IC1001
Q1009
Q1007
B
LF
R1009
R1008
R1033
R1032
R1030
R1031
GND
GND
VDD
VDD
Q1002
FLPON
FLDC+
GND
VDD
Q1008
Q1001
C1014
C1502
Q1009
C1001
C1500
R1500
R1029
Q1007
C1018
C1017
C1006
R1015
C1019
R1011
49
41
GND
GND
R1016
R1012
R1010
ONE TOUC
DUBBING
MODE (H)
C
(+)
(-)
REC MODE (
ACP-BS

SIDE B

E KIRB ASSY


Q1201
Q1202
KIRB ASSY
C1206
IR
C1205
VWG2490
VWG2493
B
R1209
R1210
V+5FL
V+13SW
VWG****
R1213
GND
LED_HDD
IR
V+13SW
LED_DVD
C1207
C1204
GND
R1207
R1206
R1212
(DVD)
LED
C1202
R1211
(HDD)
LED
D1202
Q1201
D1204
Q1202
R1204
R1205
C1201
GND
R1208
POWER
ACP-BS
KEY1_2
7
1
V+5FL
LF
A
C
R1214
R1203
R1202
DVD(H)
DISC NAVI(S)
HDD(H)
DISC HISTRY(S)
R1201
CN1201

(VNP1962-C)

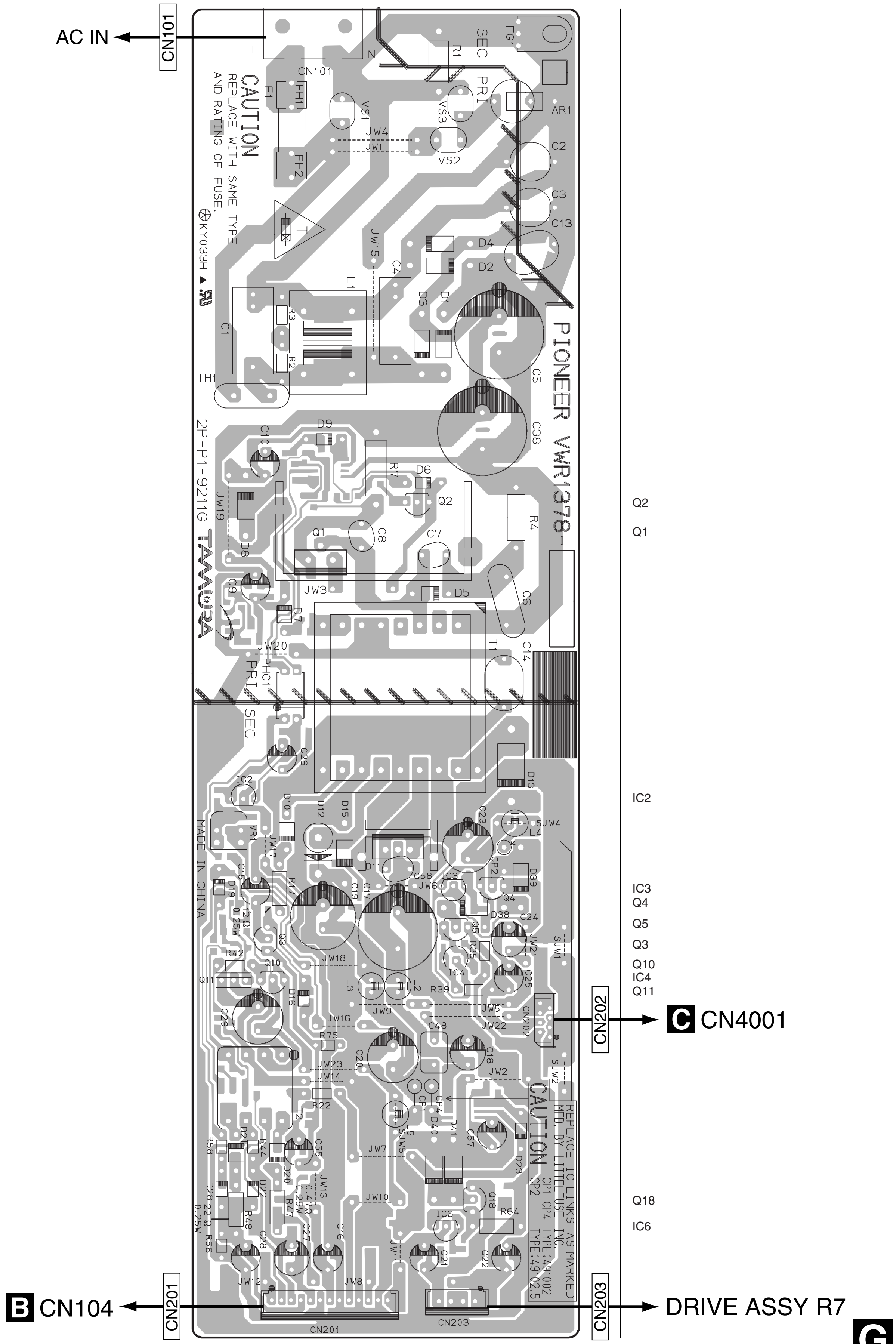

CN1001
FLKY ASSY
R1015
C1019
R1011
C1011
GND
VDD
C1018
C1017
C1006
IC1001
1
11
12
22
23
33
34
44
GND
VDD
R1013
R1014
GND
FLSTB
FLDC+
FL-28V
VWG2489
VWG2508
VWG****
LED_DVD
FLDATA
FLPON
C1021
FL-28V
FLDC+
KEY2
KEY1
FLSTB
GND
GND
19
VDD
A
IR
FLCLK
FLDC-
GND
LED_HDD
GND
V+5E
C1007
R1005
C1013
LED_DVD
KEY2
KEY1
V+13SW
C1002
GND
V+5FL
KEY1_2
IR
V+13SW
LED_DVD
CN1002
33
27
9
1
C1009
R1016
R1012
R1010
ONE TOUCH
DUBBING
MODE (H)
REC MODE (S)
V+5FL
R1007
REC
D
R1017
REC STOP
V+5FL
C1020
C1004
R1002
PLAY
R1001
C1003
R1006
STOP
R1034
OPEN/CLOSE
GND
LED
HDD
IR
R1035
E

(VNP1962-C)

D E

4.5 POWER SUPPLY UNIT

SIDE A **G** POWER SUPPLY UNIT **SIDE A**

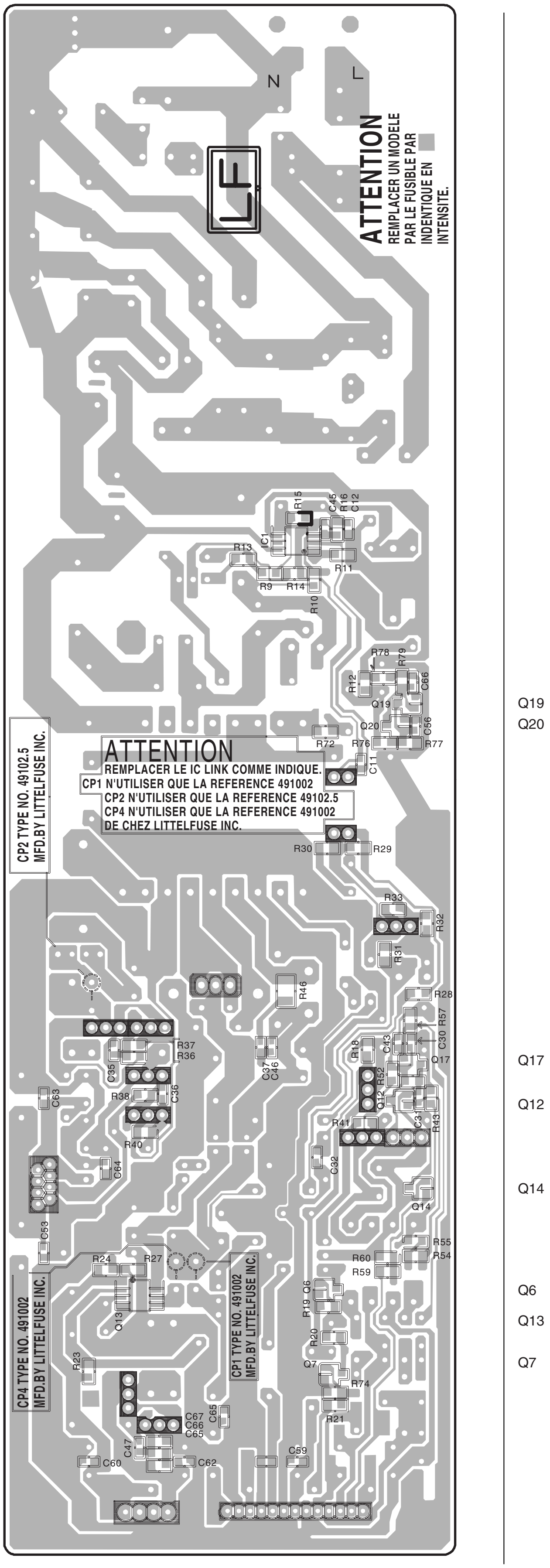

AC IN
CN101
CAUTION
REPLACE WITH SAME TYPE AND RATING OF FUSE.
KY033H
SEC
PRI
PIONEER VWR1378-
2P-P1-9211G
TAMURA
MADE IN CHINA
CAUTION
REPLACE IC LINKS AS MARKED
MFD. BY LITTELFUSE INC.
CP1 CP4 TYPE:49102
CP2 TYPE:49102.5
Q2
Q1
IC2
IC3
Q4
Q5
Q3
Q10
IC4
Q11
CN202
C CN4001
Q18
IC6
B CN104
CN201
CN203
DRIVE ASSY R7

G **G**

SIDE B

G POWER SUPPLY UNIT

SIDE B


N
L
LF
ATTENTION
REMPLACER UN MODELE
PAR LE FUSIBLE PAR
INDENTIQUE EN
INTENSITE.
R15
C45
R16
C12
IC1
R13
R11
R9
R14
R10
R78
R79
R12
C66
Q19
Q20
C56
R72
R76
R77
C11
ATTENTION
REMPLACER LE IC LINK COMME INDIQUE.
CP1 N'UTILISER QUE LA REFERENCE 491002
CP2 N'UTILISER QUE LA REFERENCE 49102.5
CP4 N'UTILISER QUE LA REFERENCE 491002
DE CHEZ LITTELFUSE INC.
CP2 TYPE NO. 49102.5
MFD.BY LITTELFUSE INC.
R30
R29
R33
R32
R31
R46
R28
R57
C30
C43
R18
Q17
R37
R36
C35
C37
C46
R52
Q12
C36
R38
C63
R41
C31
R43
R40
C32
C64
Q14
C53
R55
R54
R60
R59
R24
R27
Q6
R19
Q13
R20
CP4 TYPE NO. 491002
MFD.BY LITTELFUSE INC.
CP1 TYPE NO. 491002
MFD.BY LITTELFUSE INC.
R23
Q7
R74
C67
C66
C65
C65
R21
C47
C59
C60
C62
Q19
Q20
Q17
Q12
Q14
Q6
Q13
Q7

G **G**

5. PCB PARTS LIST

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

$560\,\Omega \rightarrow 56 \times 10^1 \rightarrow 561$ .... RD1/4PU$\boxed{5}\boxed{6}\boxed{1}$J
$47k\,\Omega \rightarrow 47 \times 10^3 \rightarrow 473$ .... RD1/4PU$\boxed{4}\boxed{7}\boxed{3}$J
$0.5\,\Omega \rightarrow R50$ .... RN2H$\boxed{R}\boxed{5}\boxed{0}$K
$1\,\Omega \rightarrow 1R0$ .... RS1P$\boxed{1}\boxed{R}\boxed{0}$K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

$5.62k\,\Omega \rightarrow 562 \times 10^1 \rightarrow 5621$ .... RN1/4PC$\boxed{5}\boxed{6}\boxed{2}\boxed{1}$F

LIST OF ASSEMBLIES

Mark	No. Description	Part No.
	1..TUNB ASSY	VWV2010
	1..JCKB ASSY	VWV2027
	1..MAIN ASSY	VWV2007
	1..FLKB ASSY	VWM2254
	2..FLKY ASSY	VWG2489
	2..KIRB ASSY	VWG2490
	2..FRJBASSY	VWV2004
⚠	1..POWER SUPPLY UNIT	VWR1378

A TUNB ASSY

SEMICONDUCTORS

Mark	No. Description	Part No.
	IC451	CXA2064M
	Q303	2SA1576A
	Q301	2SC4081
	Q304,Q451	HN1C01FU
	Q302	RN4903
	Q306	UMF21N
	D301	1SS355
	D302	UDZS33B

COILS AND FILTERS

Mark	No. Description	Part No.
	L302 CHIP FERRITE BEAD	CTF1399
	L304,L305 CHIP BEAD	VTL1081
	L303 RADIAL INDUCTOR	VTL1165

CAPACITORS

Mark	No. Description	Part No.
	C460,C474	CCSRCH681J50
	C301,C303,C451,C467	CEAT100M50
	C319	CEAT101M10
	C453	CEAT101M16
	C305	CEAT102M6R3
	C462	CEAT4R7M50
	C459,C473	CKSRYB103K50
	C469,C470	CKSRYB105K10
	C475	CKSRYB123K50
	C311	CKSRYB222K50
	C452	CKSRYB272K50
	C458,C472	CKSRYB472K50
	C457	CKSRYB473K25
	C476	CKSRYB562K50
	C313,C454,C461	CKSRYF104Z25
	C455,C463,C464,C466,C468	VCG1039
	C477	VCG1039
	C471	VCH1224
	C465	VCH1225

RESISTORS

Mark	No. Description	Part No.
	R327	RS1/10S0R0J
	R465	RS1/16S6802F
	VR453	VCP1123
	VR451,VR452 (4.7kohm)	VCP1154
	Other Resistors	RS1/16S###J

OTHERS

Mark	No. Description	Part No.
	CN451 13P SOCKET	AKP7070
	CN301 19P SOCKET	AKP7073
	U301 TV FRONT END	VXF1022

B JCKB ASSY

SEMICONDUCTORS

Mark	No. Description	Part No.
	IC204	BR24L32F-W
	IC701	LA73033M
	IC601	LC75342M
	IC501	MM1504XN
⚠	IC101	MM1565AF
⚠	IC103	NJM78M09FA
	IC202	PEG034B
⚠	IC102	PQ1K333M2ZP
	IC201	PST3245
	IC203	RS5C372A
	IC206	TC74HCT7007AF
	IC205	TC7WU04FU
	Q506,Q508,Q510,Q701	2SA1576A
	Q104	2SB1238X
	Q102,Q103	2SC2411K
	Q105,Q172,Q205,Q702	2SC4081
	Q204	2SD2114K
	Q202,Q203,Q707,Q710	DTA124EUA
	Q206,Q712	DTC124EUA
	Q514	HN1B04FU
	Q708,Q711	HN1C03FU
	Q201	RN1901
	Q703,Q706,Q709	RN4903
	Q101	UMF21N
	D102	1SR154-400
	D203	1SS352
	D201,D716,D717	1SS355
	D601,D602,D604,D605	DF3A5.6FU
	D718-D720	DF3A5.6FU
	D103,D202	RB501V-40

Mark No. Description	Part No.
D607	UDZS5.1B

COILS AND FILTERS

Mark No. Description	Part No.
L503-L505	LAU100J
L701	LAU2R2J
L103	LCYA100J2520
L102 UNDUCTOR	LTA102J
L201-L208,L284 CHIP BEAD	VTL1081

CAPACITORS

Mark No. Description	Part No.
C211,C220,C225,C226,C543	CCSRCH101J50
C619-C621	CCSRCH101J50
C245	CCSRCH120J50
C516,C522,C528,C720,C721	CCSRCH150J50
C140	CCSRCH221J50
C249,C250,C517,C523,C529	CCSRCH270J50
C542	CCSRCH331J50
C221,C232,C233	CCSRCH470J50
C177	CCSRCH561J50
C702	CCSRCH680J50
C215	CCSRCH681J50
C174,C601-C603,C607-C611	CEAT100M50
C614-C616,C618	CEAT100M50
C103,C107,C117,C118	CEAT101M10
C125,C126,C128,C141,C214	CEAT101M10
C507,C652,C717,C727	CEAT101M10
C121,C123,C133,C604,C612	CEAT101M16
C748,C751	CEAT101M6R3
C704,C716,C719	CEAT102M6R3
C539	CEAT220M25
C738	CEAT221M16
C739	CEAT221M6R3
C740,C744	CEAT470M16
C135	CEAT471M16
C705,C706	CEAT471M6R3
C137	CEJQ101M16
C102	CKSQYB225K10
C129,C224,C606,C617,C747	CKSRYB103K50
C222,C223,C707,C708	CKSRYB104K16
C711-C713,C718,C723-C725	CKSRYB104K16
C728-C730,C732-C735,C737	CKSRYB104K16
C741	CKSRYB104K16
C502	CKSRYB105K10
C241	CKSRYF103Z50
C104-C106,C115,C116	CKSRYF104Z25
C119,C120,C122,C124,C127	CKSRYF104Z25
C130-C132,C134,C136,C139	CKSRYF104Z25
C173,C175,C202-C204	CKSRYF104Z25
C216,C217,C228,C234	CKSRYF104Z25
C239,C240,C244,C246,C501	CKSRYF104Z25
C519,C525,C531,C605,C613	CKSRYF104Z25
C653,C709,C710,C714,C715	CKSRYF104Z25
C726,C731,C736,C749,C750	CKSRYF104Z25
C752,C760	CKSRYF104Z25
C101,C209,C210,C212,C213	CKSRYF105Z10
C218,C219,C227,C231,C236	CKSRYF105Z10

RESISTORS

Mark No. Description	Part No.
R178	RS1/16S1501F
R173	RS1/16S3901F
R519,R526,R534	RS1/16S5600F
R602,R605,R606,R615-R617	RS1/16S75R0F
R704,R715,R717,R718	RS1/16S75R0F
R728-R730,R740,R743,R747	RS1/16S75R0F
R757-R759	RS1/16S75R0F
Other Resistors	RS1/16S###J

OTHERS

Mark No. Description	Part No.
X201 CERAMIC RESONATOR	ASS7034
X202 CRYSTAL RESONATOR (32kHz)	VSS1143
X203 CRYSTAL RESONATOR (4.433619MHz)	VSS1176
CN202 9P FFC CONNECTOR	52045-0945
CN705 13P FFC CONNECTOR	52045-1345
CN201 19P FFC CONNECTOR	52045-1945
CN402 13P PLUG	AKP7059
CN401 19P PLUG	AKP7062
CN104 KR CONNECTOR	B13B-PH-K
CN105,CN703 KR CONNECTOR	B2B-PH-K
JA651 OPTICAL LINK OUT 8MB/S	JFJ1001
JA201 REMOTE CONTROL JACK	RKN1004
⚠ BT201 LITHIUM BATTERY	VEM1033
JA701 3P PIN JACK	VKB1150
JA601 JACK	VKB1183
JA702 JACK	VKB1184
CN702 CONNECTOR	VKN1200
CN701 32P FFC CONNECTOR	VKN1263
KN801,KN802 WRAPPING TERMINAL	VNF1084

C MAIN ASSY

SEMICONDUCTORS

Mark No. Description	Part No.
IC3101	AK5381VT
IC2301	BA7655AF
IC1101	K4S281632E-TC75
IC1401	K4S561632E-TC75
IC1001	M65673WG-A
⚠ IC4007	MM1603DP
IC1301	MT48LC4M32B2TG-7
⚠ IC4004,IC4006	NJM2872F05
IC4206	NJU7013F
IC3201	PCM1742KE
⚠ IC4008	PQ015YZ01ZP
⚠ IC4002	PQ070XZ02ZP
IC4003	PST3428U
IC4005	PST3809U
IC3402	SM8707KV
IC3001	TC74LCX541FT
IC3002	TC74VHC14FT
IC3403,IC4205	TC7WHU04FU
IC3251	UPC4570G2
IC1102	VYW2179
IC1201	W986416DH-6
Q2101-Q2105,Q2201,Q2203,Q2301	2SA1576A
Q2312	2SA1576A
Q4000	2SC2411K
Q2202,Q2222	2SC4081
Q2302,Q2311	DTC114EUA
Q2402,Q2403	HN1B04FU
Q3201,Q3202	RN1903

Mark	No.	Description	Part No.
	Q1102		RN4982
	Q2001		UMF21N
	D3001,D3002,D3101-D3104		1SS355
	D4201		MA2ZV05
	D1111		RB521S-30

COILS AND FILTERS

Mark	No.	Description	Part No.
	F3102,F3401-F3403,F4201	CHIP BEAD	DTF1069
	L1001-L1009,L1101,L1102,L1301	CHIP EMI FILTER	DTL1106
	L1401	CHIP EMI FILTER	DTL1106
	L4202		LCYA1R2J2520
	F3201	CHIP SOLID INDUCTOR	VTF1096
	L2101	CHIP COIL	VTL1067
	L4201	CHIP BEAD	VTL1079

CAPACITORS

Mark	No.	Description	Part No.
	C3253,C3258		CCSRCH101J50
	C3207		CCSRCH331J50
	C4208		CCSRCH390J50
	C3254,C3257		CCSRCH681J50
	C2208,C2317,C4034		CEVW100M16
	C3251,C3255,C4001,C4002,C4004		CEVW101M16
	C4029,C4037		CEVW101M16
	C2101,C2221,C2405,C3201,C3204		CEVW101M6R3
	C3206		CEVW101M6R3
	C2301		CEVW220M6R3
	C4022		CEVW221M4
	C3106		CEVW2R2M50
	C2308,C3102,C3107,C4003		CEVW470M6R3
	C1031,C1032,C1503-C1506		CKSQYB104K16
	C2204,C4206		CKSQYB105K10
	C1901,C4014,C4019,C4033		CKSQYB225K10
	C1004,C1012,C1014,C1029,C1034		CKSRYB102K50
	C1040,C1044,C1049,C1051		CKSRYB102K50
	C1110,C1111,C1207,C1208,C1307		CKSRYB102K50
	C1311,C1313,C1407,C1408,C3408		CKSRYB102K50
	C1003,C1027,C1037,C1052,C1109		CKSRYB103K50
	C1206,C1305,C1308,C1310,C1406		CKSRYB103K50
	C2305,C3003,C3004,C4018,C4020		CKSRYB103K50
	C4207		CKSRYB103K50
	C1508-C1510,C2311,C4104		CKSRYB104K16
	C4103		CKSRYB223K50
	C2202		CKSRYB563K16
	C1002,C1005,C1007-C1010,C1016		CKSRYF104Z25
	C1018,C1019,C1021-C1023		CKSRYF104Z25
	C1025,C1026,C1028,C1030,C1035		CKSRYF104Z25
	C1038,C1041,C1042,C1047,C1102		CKSRYF104Z25
	C1105,C1106,C1114,C1202,C1204		CKSRYF104Z25
	C1302,C1304,C1312,C1402,C1404		CKSRYF104Z25
	C2102-C2106,C2201,C2206		CKSRYF104Z25
	C2222,C2223,C2306,C2319		CKSRYF104Z25
	C2406,C2407,C3001,C3006,C3101		CKSRYF104Z25
	C3105,C3108,C3202,C3203,C3205		CKSRYF104Z25
	C3252,C3256,C4006-C4008,C4010		CKSRYF104Z25
	C4012,C4013,C4017,C4021		CKSRYF104Z25
	C4024-C4026,C4032,C4107		CKSRYF104Z25
	C4202,C4203,C4209		CKSRYF104Z25
	C1001,C1006,C1048,C1103,C1107		CKSRYF105Z10
	C1203,C1205,C1209,C1303,C1306		CKSRYF105Z10
	C1309,C1403,C1405,C1409		CKSRYF105Z10
	C3404-C3407,C4027,C4030,C4201		CKSRYF105Z10
	C4401,C4501		CKSRYF105Z10
	C4028		DCH1200
	C3402,C3403,C4015		VCG1045
	VC4201 (10pF)		VCM1012

RESISTORS

Mark	No.	Description	Part No.
	R1025,R1026,R1042-R1046		RAB4CQ103J
	R1048-R1051,R1054,R1068,R1069		RAB4CQ103J
	R1072,R1073,R5218-R5221		RAB4CQ103J
	R5229,R5230,R5289,R5290		RAB4CQ103J
	R1408-R1411		RAB4CQ220J
	R4401,R4404,R4410,R4416,R4417		RAB4CQ223J
	R4423,R4502,R4506,R4512		RAB4CQ223J
	R4518,R4519,R4525		RAB4CQ223J
	R1114-R1117,R4405-R4408,R4436		RAB4CQ330J
	R1303-R1310,R1404-R1407		RAB4CQ560J
	R1203-R1206		RAB4CQ680J
	R1207,R1502,R1507,R2017,R3002		RS1/10S0R0J
	R3102,R3201,R3252,R4001,R4006		RS1/10S0R0J
	R4009,R4014,R4016,R4109		RS1/10S0R0J
	R4019		RS1/10S1001D
	R1501		RS1/10S2202F
	R4020		RS1/10S5600D
	R4013		RS1/16S1001F
	R3254,R3266		RS1/16S1002F
	R4012		RS1/16S1200F
	R3253,R3265		RS1/16S1201F
	R4011		RS1/16S1501F
	R1021,R1023		RS1/16S2201F
	R3251,R3269		RS1/16S2202F
	R2105,R2106,R2111,R2112,R2115		RS1/16S3300F
	R4018		RS1/16S3600D
	Other Resistors		RS1/16S###J

OTHERS

Mark	No.	Description	Part No.
	CN4401	40P FFC CONNECTOR	VKN1811
	CN1901	7P FFC CONNECTOR	VKN1812
	CN4001	8P FFC CONNECTOR	VKN1813
	CN3001	24P FFC CONNECTOR	VKN1814
	CN2001	32P FFC CONNECTOR	VKN1815
	KN3	EARTH METAL FITTONG	VNF1109
	X4201	CRYSTAL RESONATOR (27.000MHz)	VSS1146
	X4102	VCXO (27MHz)	VSS1195

D FLKY ASSY

SEMICONDUCTORS

Mark	No.	Description	Part No.
	IC1001		PT6315

COILS AND FILTERS

Mark	No.	Description	Part No.
	L1001		LAU220J

SWITCHES AND RELAYS

Mark	No.	Description	Part No.
	S1001,S1002,S1004-S1009		VSG1024

CAPACITORS

Mark	No.	Description	Part No.
	C1012		CEJQ101M6R3
	C1010		CEJQ220M35
	C1001-C1004,C1020		CKSRYB103K50

Mark	No.	Description	Part No.
	C1006,C1009,C1013		CKSRYF104Z25
	C1011		CKSRYF105Z10

RESISTORS

Mark	No.	Description	Part No.
	All Resistors		RS1/16S###J

OTHERS

Mark	No.	Description	Part No.
	CN1001	19P FFC CONNECTOR	9607S-19F
	V1001	FL TUBE	VAW1081
	CN1002	CONNECTOR	VKN1183
		FL HOLDER	VNF1129

E KIRB ASSY

SWITCHES AND RELAYS

Mark	No.	Description	Part No.
	S1201-S1203		VSG1024

CAPACITORS

Mark	No.	Description	Part No.
	C1204		CKSRYF104Z25

RESISTORS

Mark	No.	Description	Part No.
	All Resistors		RS1/16S###J

OTHERS

Mark	No.	Description	Part No.
	IC1201	REMOTE RECEIVER UNIT	RPM7140-H9
	CN1201	CONNECTOR	VKN1183

F FRJB ASSY

CAPACITORS

Mark	No.	Description	Part No.
	C1308,C1309		CCSRCH471J50

RESISTORS

Mark	No.	Description	Part No.
	R1501,R1502		RS1/10S0R0J
	Other Resistors		RS1/16S###J

OTHERS

Mark	No.	Description	Part No.
	CN1301	FFC CONNECTOR 13P	52492-1320
	JA1301	YC CONNECTOR(VERTI)	VKB1190
	JA1302	3P JACK(VERTICAL)	VKB1206
	KN1301	WRAPPING TERMINAL	VNF1084

G POWER SUPPLY UNIT

Mark	No.	Description	Part No.
⚠	IC1, IC4	(2A)	AEK7013
⚠	IC2	(2.5A)	AEK7014

6. ADJUSTMENT

6.1 TUNB ASSY ADJUSTMENT

* It is not necessary to adjust the ASSY normaly when exchanging the ASSY. But the adjustment is necessary when exchanging the Tuner Module and IC451 stereo decoder IC.

No.	Adjustment Name	Adj. Point	Measurement Point	Adjustment Value	Adjustment State
1	Stereo Decoder ATT adjustment (Input system adjustment)	VR453	Audio ouput (L) (Rear panel)	370mVrms ± 18.5mV	Input a signal of Mono 1kHz/100% modulation to terrestrial tuner input. /through output.
2	Stereo Decoder Wideband adjustment (Input system adjustment)	VR451	Audio ouputs (L/R) (Rear panel)	Best point of separation ≥30dB Note 1	Input a signal of Stereo 300Hz/30% modulation (NR-ON/L ch only) to terrestrial tuner input. Note 2
3	Stereo Decoder Spectral adjustment (Input system adjustment).	VR452	Audio ouputs (L/R) (Rear panel)	Best point of separation ≥25dB Note 1	Input a signal of Stereo 3kHz/30% modulation (NR-ON) to terrestrial wave input. /through output Note 2

Note 1 : The values for channel separation is defined as those having passed through the following filters :
100Hz – 10kHz : +0/–0.5dB
15.75kHz – 100kHz : -40dB or more

Note 2 : The adjustment No.2 and No.3 should be repeated 2 times for good adjustment.
(Steps : No.1 → No.2 → No.3 → No.2 → No.3)

A TUNB ASSY

SIDE A

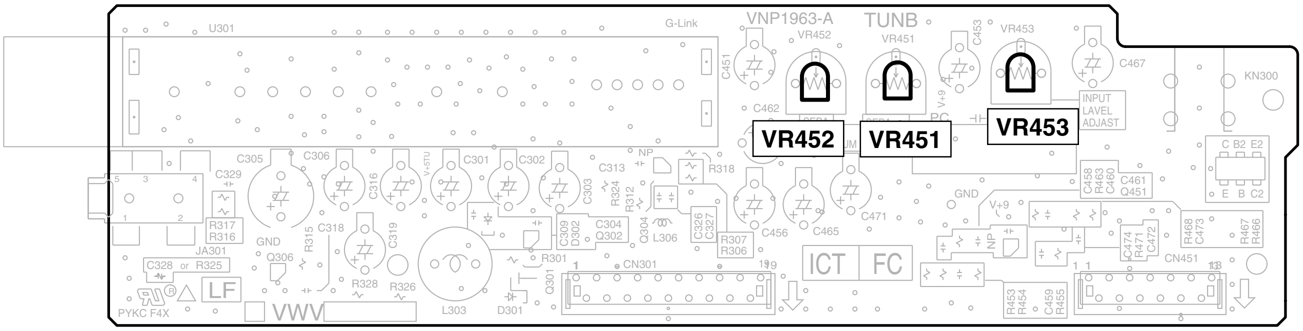


Fig.1 Adjustment Points (TUNB ASSY)

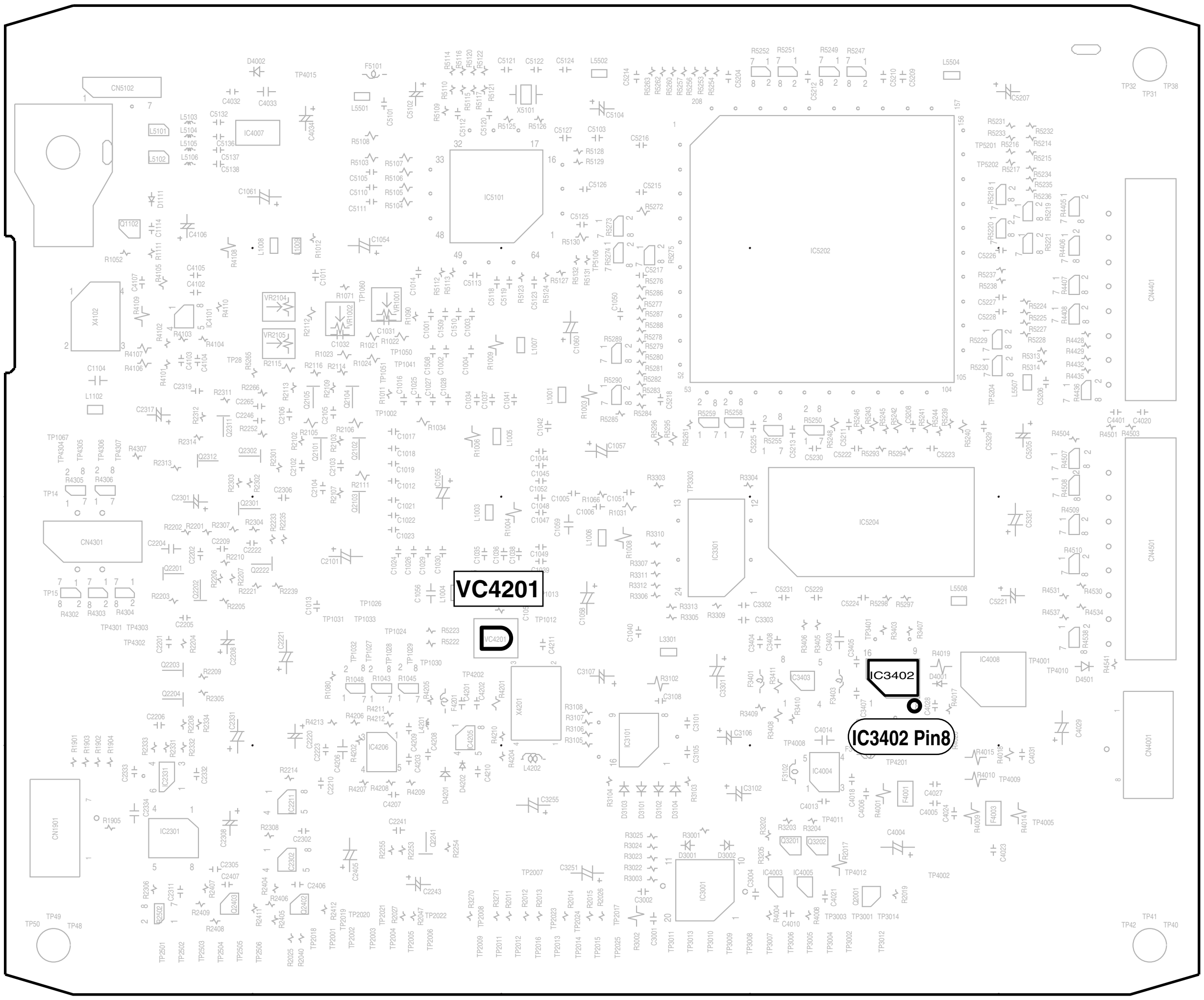
6.2 MAIN ASSY ADJUSTMENT

* It is not necessary to adjust the ASSY normaly when exchanging the ASSY, but confirm the data.

No.	Adjustment Name	Adj. Point	Measurement Point	Adjustment Value	Adjustment State
1	Master clock free-running adjustment (Clock system adjustment)	VC4201	MAIN ASSY IC3402 Pin8 (XTO) (SM8707KV)	27.000000MHZ ± 130Hz	No signal input

C MAIN ASSY

SIDE A



VC4201
IC3402
IC3402 Pin8
IC5202
IC5204
IC5101
IC3301
IC3101
IC4008
IC4007
CN4401
CN4501
CN4001
CN4301
CN1901
CN5102

7. GENERAL INFORMATION

7.1 DIAGNOSIS

■ Service Diagnosis List

7.1.1 CPRM ID NUMBER AND DATA SETTING

The Setting is necessary

- " CPRM ERR" is displayed on the FL display immediately after the power is turned on or in Stop mode.
- When the MAIN ASSY , DRIVE ASSY or the FLASH ROM is exchanged.

7.1.2 MODEL SETTING

7.1.3 DOWNLOAD METHOD

The Setting is necessary

- When the MAIN ASSY is replaced.
- When the JCKB ASSY is replaced.
- When the MAIN ASSY and JCKB ASSY is replaced.

7.1.4 SERVICE MODE

[First Screeen] (Version information, etc)
  [Sub Screen] (Result of error-rate measurement : Video mode/VR mode)

[Second Screen] (ATA/ATAPI debug screen)
  [Sub Screen 3] (writer maintenance information of ATA/ATAPI DEBUG OSD)
  [Sub Screen 4] (ATA/ATAPI DEBUG OSD_LD degradation judgement)

[Fourth Screen] (VR-recording error log)
  [Sub Screen 4] (Error log for VR recording)

[Fifth Screen] (Error log for VR playback)
  [Sub Screen 2] (Error log for VR playback)

7.1.5 ERROR RATE MEASUREMENT

Only Video mode measurement

7.1.6 VIDEO ADJUSTMENT FOR SPECIFIC AREA

Purposes:

Depending on the area, jitter may appear in a picture received by the tuner, as conditions of signals received by the tuner are different from area to area. To correct this kind of problem, the function of the System Codec AVIO control section for adjusting signals received by the tuner can be used.

7.1.7 AGING MODE

7.1.1 CPRM ID NUMBER AND DATA SETTING

Entering the ID Number and ID Data for DVD Recorder

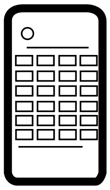
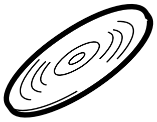
For the DVD recorder,it is necessary with the recoding/playback of DVD–RW disc to set an individual number (ID number) and ID data to each recorder. If the number and data are not set correctly with the following procedure, operations in the future may not be guaranteed. You will find the ID number to be set on the ID label on the rear panel.

Important: If no ID label is found on the rear panel, write down the specified ID number by checking it according to "How to confirm the ID number" shown below.

The Input is Necessary When:

- " CPRM ERR" is displayed on the FL display immediately after the power is turned on or in Stop mode.
- When the MAIN ASSY , DRIVE ASSY or the FLASH ROM is exchanged.

JIGS AND MEASURING INSTRUMENTS

 Service Remote Control Unit (GGF1381)	 DVD Recorder Data Disc (GGV1179) (*) Refer to P122.

Note:
Be sure to enter the ID number in Stop mode.
Use the service remote control (GGF1381) for operations. Only opening/closing of the tray are performed from the player.
The ID data disc is swept out automatically after the recorder have read the data from it.

How to Input the ID Number and ID Data

① To enter the input mode, press ESC + STEREO sequentially in a status with no ID number set, such as after FLASH-ROM downloading.

② As number input is enabled when the unit enters the input mode, input the 9-digit ID number.
(The entered number is also displayed on the FL display.)

```
   [Recorder's ID Number Setting]
     ID Number ?
②→ > - - - - - - - - -

   <CLEAR>  Exit


   Input ID Number !
```

③ After inputting the number, press SEARCH to register the ID number.

```
   [Recorder's ID Number Setting]
     ID Number ?
   > 0 0 0 0 0 0 0 0 1   OK ?

   <PLAY>      Compare Mode
③→ <SEARCH>  Enter

   Input ID Number !
```

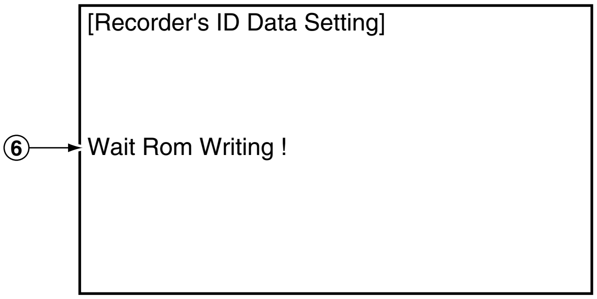
④ When the ID number has been registered, the unit enters the ID data input mode. (The FL display indicates "INSERT ID.")
In this condition, place the ID data disc on the tray and close the tray using the CLOSE key "■/⏏" on the player.

```
   [Recorder's ID Data Setting]



   <CLEAR>  Exit


④→ Insert The ID Data Disc !
```

⑤ While the data are being read, the message shown in the figure at left is displayed on the screen.
(The FL display indicates "LOAD ID.")

```
   [Recorder's ID Data Setting]






⑤→ Loading The ID Data Disc !
```

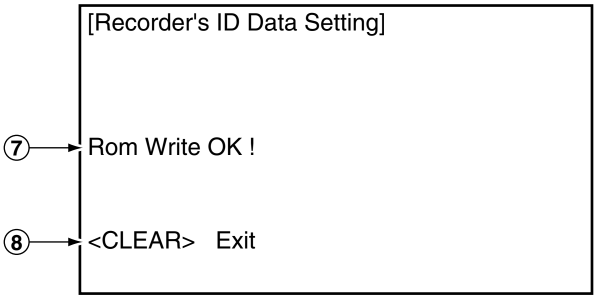
⑥ When the ID data have been read, the data are written to the FLASH-ROM.
(The FL display indicates "WRITE ID.")



```
[Recorder's ID Data Setting]

Wait Rom Writing !
```

⑦ When the ID data have been written to the FLASH-ROM, the message "Rom Write OK" is displayed on the screen.
(The FL display indicates "ID DATA OK.")

⑧ After confirming this message, press CLEAR to exit the input mode.



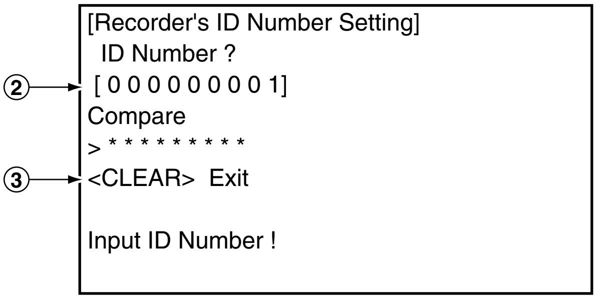
```
[Recorder's ID Data Setting]

Rom Write OK !

<CLEAR>   Exit
```

How to Confirm the ID Number

① Press ESC+STEREO sequentially with an ID number already set, and the unit enters the ID number confirmation mode.

② The set ID number is displayed on the screen (and on the FL display), permitting you to confirm it.

③ To exit this mode, press CLEAR .

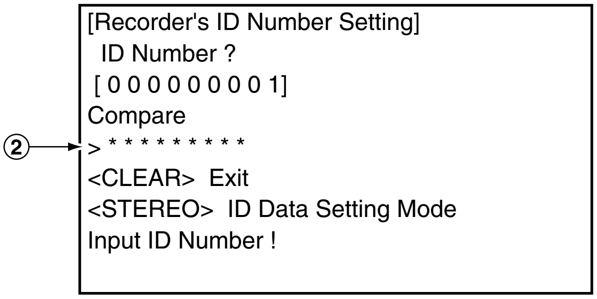


```
[Recorder's ID Number Setting]
  ID Number ?
 [ 0 0 0 0 0 0 0 0 1]
Compare
> * * * * * * * * *
<CLEAR>  Exit

Input ID Number !
```

How to Clear the ID Number

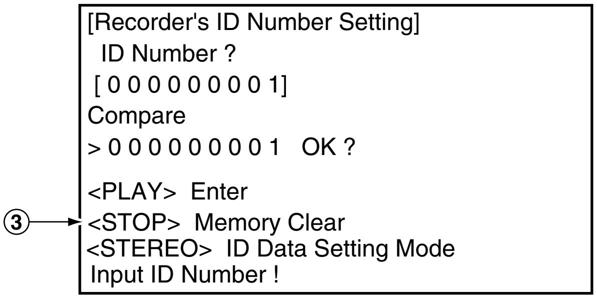
① Press ESC+STEREO sequentially with an ID number already set, and the unit enters the ID number confirmation mode.

② Input the same number as the ID number you have set.



```
[Recorder's ID Number Setting]
  ID Number ?
 [ 0 0 0 0 0 0 0 0 1]
Compare
> * * * * * * * * *
<CLEAR>  Exit
<STEREO>  ID Data Setting Mode
Input ID Number !
```

③ After inputting the number, press STOP .
Only when the entered number matches the set ID number, the ID number is cleared and the unit exits this mode.
If the numbers do not match, you must return to step 2.
(STOP is not accepted until 9 digits are entered.)



```
[Recorder's ID Number Setting]
  ID Number ?
 [ 0 0 0 0 0 0 0 0 1]
Compare
> 0 0 0 0 0 0 0 0 1   OK ?
<PLAY>  Enter
<STOP>  Memory Clear
<STEREO>  ID Data Setting Mode
 Input ID Number !
```

7.1.2 MODEL SETTING

• The Setup is Necessary When :

a) When the MAIN Assy is replaced
b) When the TUNB Assy is replaced
c) When the MAIN Assy and TUNB Assy are replaced

Note : Make sure of setting the correct number.

• How to Setup the Model

1) After power on, the following screen is displayed on TV monitor.
Press " 29 " for DVR-220-S by using the remote control unit for service(GGF1381).

```
[ Recorder 's  Model  Setting]
  Input the number by using the remote for Service.

  >  --

  Input  No.        Model
  [      29     :   DVR-220-S        ]
  [      26     :   DVR-225-S        ]
```

2) After 1), the following screen is displayed on TV monitor.
Press " 011 " by using the remote control unit for service.

```
[ Recorder 's  Type  Setting]
  Input the number by using the remote for Service.

  >  ---                    (Type  --  ,   Region  No.  -)

  Input  No.        Type
  [      01     :    KU/CA    <US>                   ]
```

The setting complete when OSD is disappeared.

3) Unplug the power cable.

4) Reset the recorder to all its factory settings.
   1. Make sure that the recorder is on.
   2. Press and hold [STOP] and press [STANDBY/ON] key on the front panel.
      The recorder turns off with all settings reset.

5) Enter the Service Mode and then confirm the Model Name " DVR-220/KU/CA ".
   1. Make sure that the recorder is on.
   2. Press [ESC] then [DISP] keys by using the remote control unit for Service.

```
DVR-220/KU/CA
  VERSION   :1.07
  SYSCON    :  RELEASE_44
               Rev      :1.3599.2.2          $
 TUFLCON    :  1.22     MASK                   OK
     DRIVE  :  DVD-RW DVR-107R                 OK
               1.03                            OK
               DADL000219WL                    OK

   DEVICE   :  PRISM-PLUS
   REGION   :  1
         C  :  * * * * * * * * *
   FLASH    :  32M
```

Notes :

1) After the setting complete, you can NOT CLEAR the seting data.
Make sure the pressing number.

2) " NG " is appeared on TV when unsuitable number is pressed.
In such a case, please unplug the power cable and plug it again. Then restart the model setting.

7.1.3 DOWNLOAD

• The Download is Necessary When :

a) After model setting
b) When "NG" is displayed at First screen (version information, etc)

[Notes]

Be sure NOT to turn off the unit during downloading.
If the unit is turned off during downloading, the SYSCON, TUFLCON, and DRIVE programs may not be properly rewritten, in which case the unit may not be able to initialize itself normally when turned on again. If that happens, repair the unit, as described below, then perform downloading again:

- In a case where the power to the unit was shut off during rewriting of the SYSCON program:
  The SYSCON program will not function properly if the power to the unit is forcibly shut off while the message "DOWNLOAD-1" is displayed on the FL display during downloading. If downloading of the programs from the disc or through serial communication becomes impossible, replace the FLASH ROM.
- In a case where the power to the unit was shut off during rewriting of the DRIVE program:
  The DRIVE program will not function properly if the power to the unit is forcibly shut off while the message "DOWNLOAD-2" is displayed on the FL display during downloading. If downloading of the programs from the disc or through serial communication becomes impossible, replace the DRIVE ASSY.
- In a case where the power to the unit was shut off during rewriting of the TUFLCON program (only for the flash-type TUFLCON microcomputers):
  The TUFLCON program will not function properly if the power to the unit is forcibly shut off while the message "DOWNLOAD-3" is displayed on the FL display during downloading. If downloading of the programs from the disc or through serial communication becomes impossible, replace the TUFLCON microcomputer.

1. DISC DOWNLOAD METHOD

• How to Download

This is disc download method to save the initial setting data and user setting data.
However, the following data is deleted after downloading by this method.
 * REC mode
 * Last channel (Before turn unit off)

1) Open a disc tray in the " DVD " function.
2) Put the download disc on the tray.
3) Press and hold a " STOP " button for playback,
   then press a " DISC NAVIGATOR " button on a front panel.
   - The disc tray closes automatically and the disc is loaded.
   - The disc tray opens automatically after loading.
4) Take out the Download Disc.
   - " DISC DWLD " is displayed on FL and download is started.
   - The display on FL changes to " DOWNLOAD-1 "
   - The display on FL changes to " DOWNLOAD-2 "
   - The display on FL changes to " DOWNLOAD-3 " (*)
   - After download is completed, the power turns off, and turns on and a disc tray closes automatically.
   * It takes for about 5 minutes until download is completed.
5) Press and hold a " ESC ", then press " DISP " on a test mode remote control unit for the release version confirmation.
6) Confirm a firmware release version.
7) Press " ESC " on a test mode remote control unit in order to exit the test mode.

(*) : " DOWNLOAD-3" is displayed only when the TuFL u-com is FLASH type.

2. Serial DOWNLOAD METHOD

[Notes]

This method is secondary way when the disc loading is impossible.

• JIGS

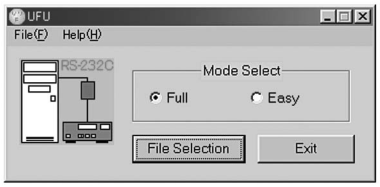
* PC with serial port
* RS232C straight cable
* RS232C I/F jig (GGF1348)
* 7P FFC (VDA1681)
* Download program (UFU.exe)
* Firmware

• Connection

PC ⇔ RS232C cable ⇔ RS232C I/F ⇔ 7P FFC ⇔ DVD Recorder

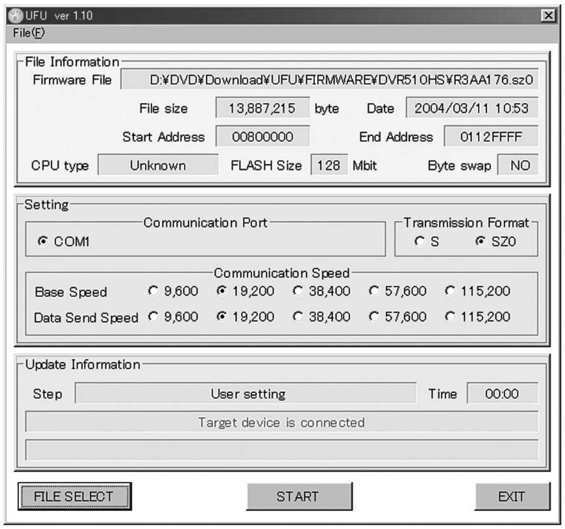
• How to Download

1) Connect the 232C I/F JIGS above way.
2) Turn on the PC and start the " UFU.exe ".



Mode Select: ● Full ○ Easy

. 3) Select the Firmware file. ("sz0" file)
4) Turn the DVD recorder on and start the download program.
" Target Device is connected" is appeared on the screen.



File Information
Firmware File: D:¥DVD¥Download¥UFU¥FIRMWARE¥DVR510HS¥R3AA176.sz0
File size: 13,887,215 byte
Date: 2004/03/11 10:53
Start Address: 00800000
End Address: 0112FFFF
CPU type: Unknown
FLASH Size: 128 Mbit
Byte swap: NO

Setting
Communication Port: ● COM1
Transmission Format: ○ S ● SZ0
Communication Speed
Base Speed: ○ 9,600 ● 19,200 ○ 38,400 ○ 57,600 ○ 115,200
Data Send Speed: ○ 9,600 ● 19,200 ○ 38,400 ○ 57,600 ○ 115,200

Update Information
Step: User setting
Time: 00:00
Target device is connected

. 5) Select the Communication Speed (Baud Rate)
a) Base Speed 38,400
b) Data Send Speed 115,200
6) START
* Even if you click "START" button,
sometimes "Communication Error" may come out one to twice, and download may fail.
In this case, please click "START" again.
* Other factors can be considerd if download fails 3 times or more.
* And it takes about an hour for updating the firmware.

7.1.4 SERVICE MODE

For service operations, use the GGF1381 remote control unit for service.
The Service-mode screens consist of nine mode screens, which are classified into such rough categories as recording system and VR playback system, and their subscreens.

- **How to enter Service mode** : Press the ESC then DISP keys in turn while no GUI is displayed. The first screen (version information, etc.) shown below is displayed.
- **How to exit Service mode** : Press the ESC key.
- **How to advance to the next Service-mode screen** : While the first screen is displayed, press directly one of the keys 1-9. For service, use the keys 2, 4 or 5, as shown below.
- **How to advance to a subscreen within the same Service-mode screen** : Press the DIG/ANA key. Pressing the DIG/ANA key repeatedly will change the subscreens within the same Service-mode screen cyclically.

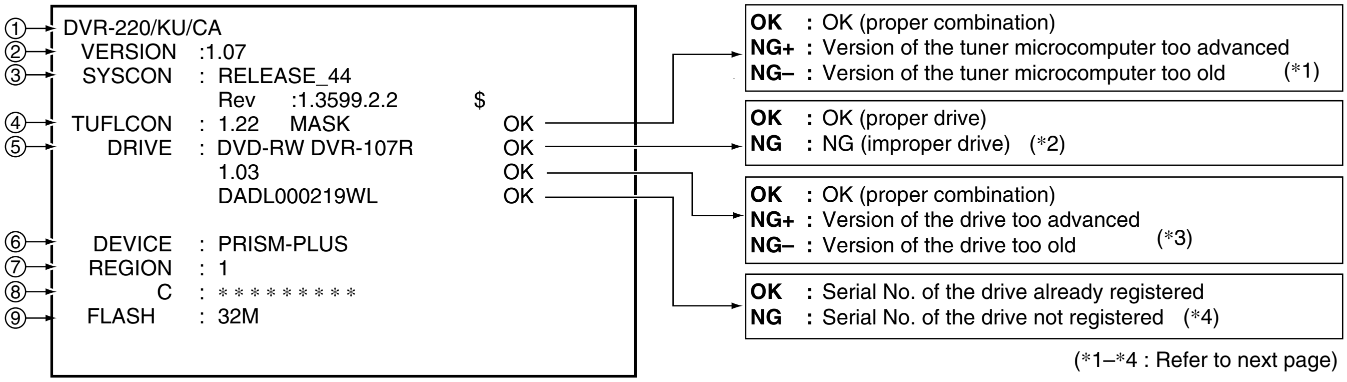
■ The Service-mode screens to be used for service are as follows:

1 = First screen: Version information, etc.
2 = Second screen: ATA/ATAPI debug screen (Writer data)
4 = Fourth screen: Error log for the VR recording system
5 = Fifth screen: Error log for the VR playback system

Note: After entering one of the Service-mode screens, if you wish to shift to another Service-mode screen, exit Service mode first, then reenter Service mode and select your desired Service-mode screen.

■ Description of Each Service-mode screen

1. First screen (version information, etc.)



```
DVR-220/KU/CA
  VERSION  :1.07
  SYSCON   :  RELEASE_44
              Rev     :1.3599.2.2          $
  TUFLCON  :  1.22     MASK               OK
     DRIVE :  DVD-RW DVR-107R             OK
              1.03                        OK
              DADL000219WL                OK

    DEVICE :  PRISM-PLUS
    REGION :  1
         C :  *********
   FLASH   :  32M
```

OK : OK (proper combination)
NG+ : Version of the tuner microcomputer too advanced
NG– : Version of the tuner microcomputer too old (*1)

OK : OK (proper drive)
NG : NG (improper drive) (*2)

OK : OK (proper combination)
NG+ : Version of the drive too advanced
NG– : Version of the drive too old (*3)

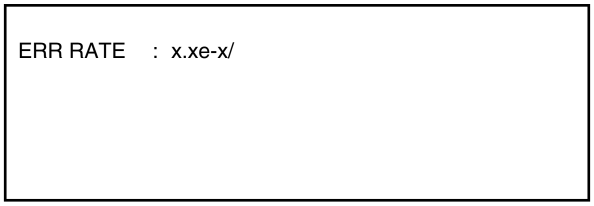
OK : Serial No. of the drive already registered
NG : Serial No. of the drive not registered (*4)

(*1–*4 : Refer to next page)

① Model name/destination
② Version of the recorder software
③ Revision No. of the system-control computer software (Edition administration No. [from top to bottom, common software, firmware, application software])
④ Version No. of the tuner microcomputer, Mask or Flash
Result of the combination ckeck with system u-com
⑤ Information on the built-in drive
(Model name, version No., model type, serial No.)
⑥ Version No. of PRISM
⑦ Region No.
⑧ CPRM data (CPRM key No.)
⑨ FLASH ROM information

While the first screen shown above is displayed, press the DIG/ANA key to enter the subscreen shown below.
Note: Each time the DIG/ANA key is pressed, the display changes between the first screen and its subscreen.

• Subscreen: Result of error-rate measurement



```
ERR RATE   :  x.xe-x/
```

Note: Be sure to start playback after displaying this subscreen to calculate the error rate.

During playback in VR mode, the average error rate of the past 10 VOBUs is displayed, and during playback in DVD-Video or Video mode, the average error rate of the past 256 sectors is displayed. During playback in VR mode, the rotation rate of the drive (/: normal speed, no display = double speed) is also displayed.

- **When "NG" is displayed at First screen (version information, etc)**

(*1) NG+ : Version of the tuner microcomputer too advanced
NG- : Version of the tuner microcomputer too old

1. When TUFL μ-com is MASK type (DVR-320-S and DVR-220-S/DVR-225-S models)
   NG+ : Download the firmware.
   NG- : Replace the TUFL μ-com or JCKB ASSY.

2. When TuFL μ-com is FLASH type
   NG+ : Download the firmware.
   NG- : Download the firmware.

(*2) NG : NG (improper drive)

Replace the correct Drive Assy.

(*3) NG+ : Version of the drive too advanced
NG- : Version of the drive too old

NG+ : Download the firmware.
NG- : Download the firmware.

(*4) NG : Serial No. of the drive not registered

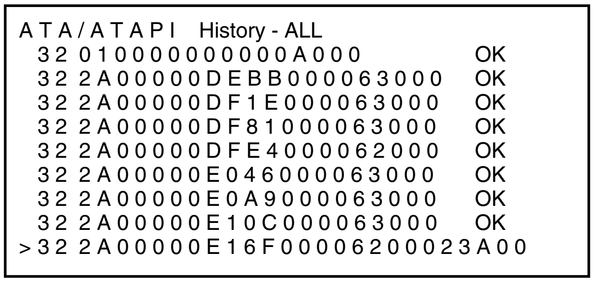
Check the part No. and replace the correct Drive Assy.

4. Second screen (ATA/ATAPI debug screen)

Subscreen 1 of the second screen is displayed when the ESC, DISP, then "2" keys are pressed, in that order.

Note: Each time the DIG/ANA key is pressed, the display changes cyclically among subscreens 1 to 4.

• Subscreen 1: Command log (ALL) of ATA/ATAPI DEBUG OSD



```
ATA/ATAPI  History - ALL
 32 010000000000A000          OK
 32 2A00000DEBB000063000      OK
 32 2A00000DF1E000063000      OK
 32 2A00000DF81000063000      OK
 32 2A00000DFE4000062000      OK
 32 2A00000E046000063000      OK
 32 2A00000E0A9000063000      OK
 32 2A00000E10C000063000      OK
>32 2A00000E16F000062000023A00
```

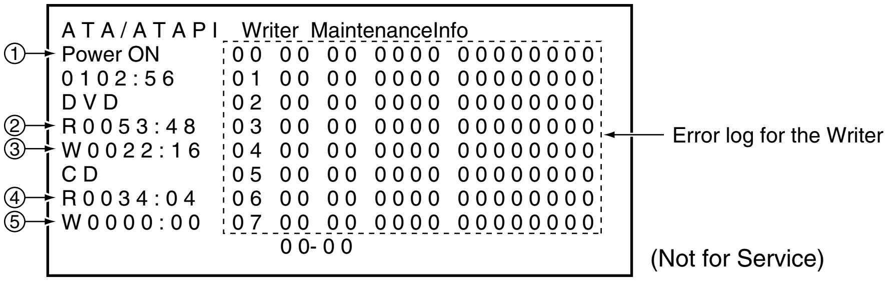
(Not for Service)

• Subscreen 2: Command log (ERROR) of ATA/ATAPI DEBUG OSD

(Not for Service)

• Subscreen 3: Writer mentenance information of ATA/ATAPI DEBUG OSD

The cumulative power-on time and error log that are administered by the writer are displayed. Such information is obtained when the power is turned on. Thereafter, each time the SEARCH key on the remote control unit for service is pressed while subscreen 3 is displayed, the updating command is sent, and the data on the subscreen are updated. Care must be taken when updating this subscreen, because an undesired command is inserted if it is executed while recording, etc.



```
ATA/ATAPI  Writer  MaintenanceInfo
Power ON     00  00  00  0000  00000000
0102:56      01  00  00  0000  00000000
DVD          02  00  00  0000  00000000
R0053:48     03  00  00  0000  00000000
W0022:16     04  00  00  0000  00000000
CD           05  00  00  0000  00000000
R0034:04     06  00  00  0000  00000000
W0000:00     07  00  00  0000  00000000
                 00-00
```

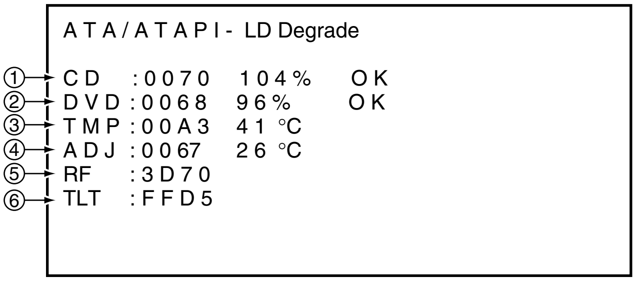
(Not for Service)

① Power-on time/cumulative power-on time
② Duration of emission of the laser diode (LD) for DVD-R/DVD while reading
③ Duration of emission of the LD for DVD-W/DVD while writing
④ Duration of emission of the LD for CD-R/CD while reading
⑤ Duration of emission of the LD for CD-W/CD while writing

(Reference)
MTTF time of each LD (as the guideline of life span of each LD)
R7R Drive Assy (Read + Write total time)
DVD : 4700h
CD : 11000h

• Subscreen 4: ATA/ATAPI DEBUG OSD_LD degradation judgment

The degrees of degradation of the LD (laser diode) for the writer (LDs for CD and DVD separately), temperature, and RF level are displayed. To update the data on the subscreen, press the SEARCH key on the remote control unit for service while subscreen 4 is displayed. See Table 1 below for a description of each item and the conditions for updating data.



```
ATA/ATAPI- LD Degrade

CD  :0070  104%  OK
DVD :0068  96%   OK
TMP :00A3  41 °C
ADJ :0067  26 °C
RF  :3D70
TLT :FFD5
```

Table 1: Description of each item and conditions for updating data

No.	Item	Description	Conditions for updating by pressing the SEARCH key	Remarks
①	CD	Degradation judgment of LD for CD. Regarded as NG when the value is 120% or higher (same standard as for the PC drive)	No disc inserted in the disc tray	∗1
②	DVD	Degradation judgment of LD for DVD. Regarded as NG when the value is 120% or higher (same standard as for the PC drive)	No disc inserted in the disc tray	∗1
③	TMP	Current temperature inside the Writer	No disc inserted in the disc tray	∗1
④	ADJ	Temperature (approx. 25°C) inside the Writer during adjustment	No disc inserted in the disc tray	∗1
⑤	RF	RF level (16-bit data, proportional calculation performed using the actual RF level value with 2.5 V = 0xFFFF as the maximum value, displayed in 4-digit hexadecimal)	During playback of disc medium	∗2
⑥	TLT	Writer adjustment data for straight (non-HDD) model (FFFF is diplayed when the writer is not adjusted.)	No condition	

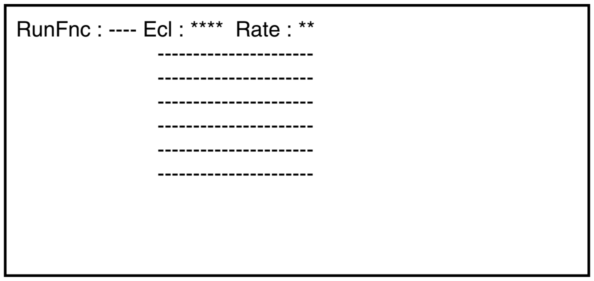
∗1 : For correct judgment, after leaving the unit at a normal temperature (25°C typ.) for some time, judgment must be performed immediately after the unit is turned on with no disc loaded.

∗2 : Use this item only for confirmation before and after lens cleaning, as the lens becomes dirty with dust.

3. Fourth screen (VR-recording-related error log)

Subscreen 1 of the fourth screen is displayed when the ESC, DISP, then "4" keys are pressed, in that order.
Note: Each time the DIG/ANA key is pressed, the display changes cyclically among subscreens 1 to 11.

• Subscreen 1:



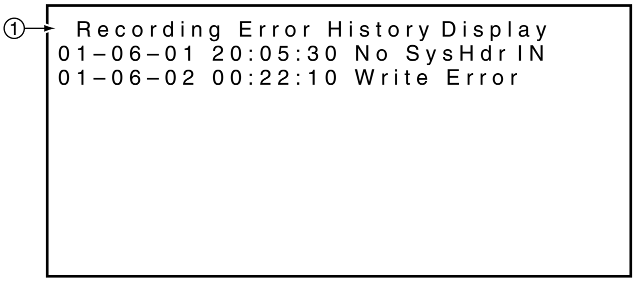
```
RunFnc : ---- Ecl : ****  Rate : **
                   ---------------------
                   ---------------------
                   ---------------------
                   ---------------------
                   ---------------------
                   ---------------------
```

(Not for Service)

• Subscreens 2 and 3:

These subscreens are not for service use.

• Subscreen 4: Error log for VR recording



```
  Recording Error History Display
01-06-01 20:05:30 No SysHdr IN
01-06-02 00:22:10 Write Error
```

Note : The information on this screen is not stored in the memory and will disappear when the power is turned off.

① Recording-related error log for the last 18 errors, divided into 2 screens
(generation time [year-month-day, hour:minute:second], error data in simplified description)

Notes:
- For details on error messages, see Table 2 "Description of VR-recording-related errors".
- The two error-log screens can be switched by pressing the SPEED+ or SPEED- key.

• Subscreens 5 to 11:

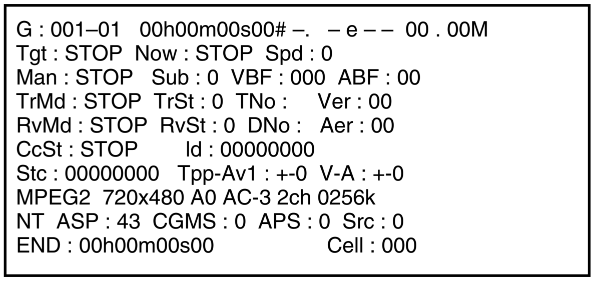
These subscreens are not for service use.

4. Fifth screen (Error log for VR playback)

Subscreen 1 of the fifth screen is displayed when the ESC, DISP, then "5" keys are pressed, in that order.

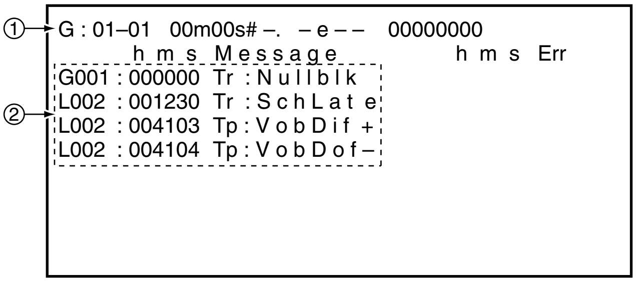
Note: Each time the DIG/ANA key is pressed, the display changes cyclically among subscreens 1 to 4.

• Subscreen 1:



```
G : 001–01   00h00m00s00# –.   – e – –  00 . 00M
Tgt : STOP  Now : STOP  Spd : 0
Man : STOP   Sub : 0  VBF : 000  ABF : 00
TrMd : STOP  TrSt : 0  TNo :     Ver : 00
RvMd : STOP  RvSt : 0  DNo :   Aer : 00
CcSt : STOP       Id : 00000000
Stc : 00000000   Tpp-Av1 : +-0  V-A : +-0
MPEG2  720x480 A0 AC-3 2ch 0256k
NT  ASP : 43  CGMS : 0  APS : 0  Src : 0
END : 00h00m00s00                 Cell : 000
```

• Subscreen 2: Error log for VR playback



```
G : 01–01   00m00s# –.   – e – –    00000000
       h m s  Message                  h  m  s   Err
G001 : 000000  Tr  : Nullblk
L002  : 001230  Tr  : SchLate
L002  : 004103  Tp : VobDif +
L002  : 004104  Tp : VobDof –
```

Note : The information on this screen is not stored in the memory and will disappear when the power is turned off.

① Data on location of the display
Original(G)/play list (L), title No., chapter No. (X:XX-XX), time of the display (min, sec, frame [XXmXXsXX]), busy mark of the virtual mechanical-control computer (#), error rate of the transfer data (X.XeXX), playback logical address (ID [XXXXXXXX])

② Error message log
Original(G)/play list (L), title No., time of generation (min, sec [XXX:XXXX]), playback-related error log for the last 13 errors (XX:XXXXXXX)

Notes:
- For details on error messages, see Table 1 "Description of VR-playback-related errors".
- If a VR-playback-related error is generated, a problem in data reading from the disc may be suspected. (The possibility of a problem on the drive side is high.)

• Subscreens 3 and 4:

These subscreens are not for service use.

Table 1: Description of VR-playback-related errors

Error Message	Description
Tr : NullBlk	Transfer task: NULL at the top block (Detecting NG stream made at the DVR-1000 series and starting protection process.)
Tr : ReadErr	Transfer task: ATA read error
Tr : SchLate	Transfer task: ATA search late
Tr : SemTOvr	Transfer task: Timeout for gaining semaphore (no synchronization with the display)
Tr : NaviErr	Transfer task: Inconsistency between NAVI (navigator) of management data and actual NAVI
Tr : OrderEr	Transfer task: Inconsistent order
Mn : Av1Hang	Main task: Detects hang-up of AV decoder and starts recovery
ERR_RCV!	TPP task: Detects hang-up of AV decoder and starts recovery
Tp : VobDif+	TPP task: The decoder STC advances by 1 VOBU hour.
Tp : VobDif-	TPP task: The STC of the management information advances
Tp : midNULL	TPP task: The management information pointer designated was NULL.
Tp : ScanNg	TPP task: Failure to set the TPP memory when scanning was canceled.
Tp : RStepEr	TPP task: Although the reverse step had failed, the operation was forcibly terminated because the top cell was located.
Tp : tppErr	TPP task: Inconsistency occurred.
Rv : 1stTOvr	Reverse playback task: Timeout for waiting for interruption to the top VOBU immediately after starting decoding
Rv : OpnTOvr	Reverse playback task: Timeout for waiting for B-picture of the open GOP immediately after starting decoding
Rv : OplTOvr	Reverse playback task: Timeout for waiting for I-picture of the open GOP immediately after starting decoding
Rv : LnkTOvr	Reverse playback task: Timeout for waiting for link
Rv : LnkFail	Reverse playback task: Starts compensation by detecting link failure
Rv : R2FTOvr	Reverse playback task: Starts retrial after detecting timeout from reverse pause to forward pause
Rv : TopVbEr	Reverse playback task: Forced termination because of a possible error of the top data during reverse normal playback
Rv : OrderEr	Reverse playback task: Inconsistent order
Av : B/CTOvr	AV1: Buffer-clear timeout
Av : StrmOvr	AV1: Timeout for waiting for stream ready
Av : TpmTOvr	AV1: Timeout for TP mode change
Av : SpmTOvr	AV1: Timeout for a step command
CC_OS_ERR	Closed caption task: OS error

Abbreviations:

STC = System Time Clock
VOBU = Video Object Unit
GOP = Group Of Picture
B-picture = Bidirectionally predictive-picture
I-picture = Intra-picture
P-picture = Predictive-picture
TP mode change = AV1 term (Trick Play mode change)

Table 2: Description of VR-recording-related errors

● Error related to MPEG Encoder

Error Message	Description
Stream NG	Inappropriate input stream data
Stm Start NG	Failure to start encoding (reasons not clear)
AVEnc Hang	Inappropriate MPEG encoder
No SysHdr IN	System packet is not input periodically
Strm Start NG	Timeout waiting for system packet input at the beginning
IN Encode *	Changes cannot be made in the process of encoding
EncModul Hang	Encoder routine is hung up.

● Error related to Drive system

Error Message	Description
BUF Overflow	Overflow of the Stream Buffer
Drive Hang	The Drive is hung up.
Write Err	The Drive failed to write and could not be recovered.
Read Err	Reading failed, ECC failed, etc.
Drv Hard Err	Abnormality in the drive hardware or firmware
Mech No Res	No response from the mechanical-control computer
Drv Timeout	Timeout waiting for drive operation
NWA Exhaust	NWA surpassed and impossible to use
MKB Invalid	MKB reading error
Drv Err	General error of the drive
Fail Repair	Repair failed
ReadOnly DISC *	Because some data are invalid, data cannot be written
May Be V mode	AlthoughTMP_VMGI is not written, it may be Video Mode disc.
Rzn Rsv NG	Reserve RZone failed
Rzn Cls NG	Close RZone failed
Rzn Rpr NG	Repair RZone failed
Bdr Opn NG	Open Border failed
Bdr Cls NG	Close Border failed
Format NG	Format failed
OPC NG	OPC failed
PCA Full	PCA has been used up.
RMA Full	RMA has been used up.
VTSI_B Wr Err	Video Mode VTSI BUP Write Error
VTSI Wr Err	Video Mode VTSI Write Error
TMP-VMG WrErr	Video Mode TMP VMGI Write Error
CLS Rzon Fail	Video Mode Close Rzone failure

● Other Errors

Error Message	Description
DRAM NG	Abnormality in access to the Work DRAM
SRAM NG	Abnormality in access to the backup work SRAM
CPRM IC NG	Inappropriate CPRM IC
Drive Destroy	The drive has crashed.
MKB REVOKED	Error in gaining data
WM Cracked	WM Cracked
VBR-SRAM NG	Abnormality in VBR SRAM
BK BATT Down	Backup RAM data has been erased.
BK FSYS Dirty	Backup RAM data has not been wrtten on the File Sys.
VOBU Info NG	Inappropriate VOBU information
Ourob Strm NG	Inappropriate stream data to the Ouroboros input
WaterMark Det	Watermark detected
No Video	No video input (not locked)
Disc Full	No further data can be written because the disc is full.
No More Info *	No more space in the internal work-management area
No Permission *	No permission to write to the disc
Limit Over *	Standard maximum limit exceeded
Rec Pause *	No operation permitted during recording pause
Invalid Param *	Invalid parameter
Protect Src *	Source to be recorded is copy-protected.
Now Busy *	In the process of the emergency processing
Invalid Disc *	The disc cannot be recognized.
Invalid UDF *	Invalid UDF content
Invalid VMG *	Invalid VMG content
Invalid TMVMG	Invalid TMP_VMGI content
Unmatch Stamp *	Impossible to modify because of nonmatching time stamp
Virgin DISC	Virgin Disc
SW Vpb mode *	Switching to video playback routine is required.
SW Vrec mode *	Switching to video recording routine is required.
NV Pck MK Err	Error in creating NaviPack
NV Pck DMA Er	Inappropriate NaviPack DMA
Cell Close NG	Cell Close NG
Relocation Do	VR-recording data was relocated
Something *	undetermined error
Status NG *	Abnormality in change of statuses
Irr Action *	Incorrect action
Abort *	Cancellation
BusReset Done	Bus Reset has been excecuted.
Repair Excec	Repairing has been executed.
Format Excec	Formatting has been executed.
BUG	Some bugs
PARAM NO ACCP	Recording parameter is not matched.

● Other Errors (continued)

Error Message	Description
DRAM CLR Err	Video Mode DRAM (Stream Buffer) Clear failure
V Categ ID NG	Inappropriate Category ID
V Cate Inf NG	Inappropriate Category information
V Ext TY NG	Type NG
V Ext MAX Ovr	Count Max exceeded
V ExtToo Big	The extension file is too large.
Over Heat	Abnormal temperatute

● No Error

Error Message	Description
Non Err *	Normal

Notes;

- Any error message marked with * is displayed "RecErr : ---------" on the Subscreen 1 of the fourth screen.
- In a case of an error in the drive system, scratches or dirt on a disc, or a problem of the drive itself (dirty pickup) may be suspected.

Abbreviations:

ECC = 4 byte Code for Error Correction
UDF = Universal Disc Format
PCA = Power Calibration Area
OPC = Optical Power Control
NWA = Next Writable Address
VMG = Video Manager
RMA = Recording Management Area
MKB = Media Key Block
TMP_VMGI = Temporary Video Manager Information
Border = from Lead-in to Lead-out

Table 3: List of Key Codes

How to enter each check mode

Test mode remote control unit : [A8**]
Remote control unit supplied with the DVR : [AB**]

No.	Check Item	Key Input	Operation / purpose	Remarks
1	EE system (same as preview)	[ESC] → [A.MON]	Turns on/off EE mode cyclically	Make sure that CGMS = 11 becomes when CGMS = 10 is input. EE mode: Simulation mode for recording status
		[PLAY]	Starts the EE system in EE mode (main-unit setting rate)	
		[STOP]	Stops the EE system in EE mode	
2	Error-rate measurement	[ESC] → [SIDEB]	**V-mode recording:** After recording for 10 seconds, the unit starts playback while displaying the error rate. **DVD-Video:** The error rate is automatically measured, then the result will be displayed.	For details, see " 7.1.4 ERROR RATE MEASUREMENT ".
3	Settings for specific areas	[ESC] → [CHP/TIM]	Enters Adjustment mode for AVIO settings	Settings are made for the selected input (TUNER, LINE). For details, see " 7.1.5 SETTINGS FOR SPECIFIC AREAS ".
		[ESC]	Determines the settings, then exits Adjustment mode	

How the ESC code is processed

- When the ESC code is received, ESCAPE mode is entered, but in combination with the code(s) that follow(s), a specific meaning is added.
- If ESC codes are received continuously, ESCAPE mode is retained.

7.1.5 ERROR RATE MEASUREMENT

How to enter Error-Rate Measurement mode

Press the ESC key then the SIDE-B key of the remote control unit for service to enter Error-Rate Measurement mode. During playback of DVD-VIDEO, Error-Rate Measurement mode can also be entered by pressing the ESC key then the PLAY key.

How to exit Error-Rate Measurement mode

Press the ESC key. The error-rate display disappears, and Error-Rate Measurement mode is exited.

Note: The error rate cannot be measured in VR mode or during CD playback.

Functions

① Video-mode recording (recording medium)

In this mode, DVD recording is automatically performed for 10 seconds, the recorded DVD title is played back while the error rate is being measured, then as soon as playback of the recorded DVD title is finished, playback stops.*1 After error-rate measurement is finished, the average error rate will be displayed on the FL display and OSD. Only in a case in which the calculation of the average error rate fails, the tray will open.

② DVD-VIDEO (playback medium)

Only during playback, when the ESC key then the SIDE-B key (or the ESC key then the PLAY key) are pressed, the error rate is calculated and displayed on the FL display and OSD.(∗2) Only in a case in which the calculation of the average error rate fails, the tray will open.

■ Changes of display

Table 1: Video mode (recording medium)

Operation	Display	
	FL Display	OSD (On Screen Display)
"ERROR RATE" is displayed on the FL display for an instant.	ERROR RATE	
DVD recording starts.	ERROR RATE	
DVD recording is performed for 10 seconds.	xxxxx	
The recorded DVD title is played back while the error rate is being measured, then as soon as playback is finished it stops.	ER x.xE-x	ERR RATE : x.xE-x -
After error-rate measurement is finished (∗1), the average error rate, the measurement-finish mark (∗), and the OK/NG-judgment result (∗3) will be displayed on the FL display and OSD. (If the tray opens as a result of NG judgment, the display on the FL display and OSD will be retained.)	ER x.xE-x	ERR RATE : x.xE-x ∗ OK

Table 2: DVD-Video (playback medium)

Operation	Display	
	FL Display	OSD (On Screen Display)
Only during playback, when the corresponding keys are pressed, the error rate is calculated and displayed on the FL display and OSD. (∗2)	ER x.xE-x	ERR RATE : x.xE-x -
After error-rate measurement is finished (∗1), the average error rate, the measurement-finish mark (∗), and the OK/NG-judgment result (∗3) will be displayed on the FL display and OSD. (If the tray opens as a result of NG judgment, the display on the FL display and OSD will be retained.)	ER x.xE-x	ERR RATE : x.xE-x - OK

∗1 : Whether error-rate measurement is finished or not is judged, as shown in Table 3 below.

Table 3: On judgment whether error-rate measurement is finished or not

Recording Mode	Judgment whether error-rate measurement is finished or not	Recording/playback duration required for error-rate measurement
Video mode	After playback of a certain amount (∗) of data Measurement of the 16 ECC blocks is performed 16 times, then the grand sum is used for calculation of the error rate. The capacity is as follows: 16 ECC blocks × 16 sectors × 2048 bytes × 16 times = 8388608 bytes = 67108864 bits	The time required for completion of error-rate measurement varies, depending on the input video signal to be recorded. (The more the motion in the input video signal to be recorded is animated, the shorter the playback time required for completion of error-rate measurement becomes.)

∗2 : During DVD-VIDEO error-rate measurement, even after error-rate measurement is finished, playback continues, and the display of the error rate results is retained. In this playback mode, if Error-Rate Measurement mode is exited by pressing the ESC key, then it is reentered by pressing the ESC and SIDE-B keys (or ESC and PLAY keys), the error rate will not be updated, and the previous value is displayed. To reset the previous error rate, stop disc playback.

∗3 : OK/NG judgment
In DVD/VIDEO and Video Mode recording, OK/NG judgment is displayed under the following conditions:

Table 4: List of OK/NG threshold values

Disc Type	Recording Mode	Finalized or not finalized	Reference Value	Display
DVD-VIDEO			8.0×10^{-4}	OK / NG
DVD-R	Video mode	Finalized	1.0×10^{-3}	OK / NG
		Not finalized	1.0×10^{-3}	OK / NG
DVD-RW	Video mode	Finalized	1.0×10^{-3}	OK / NG
		Not finalized	1.0×10^{-3}	OK / NG

7.1.6 VIDEO ADJUSTMENT FOR SPECIFIC AREA

Purposes: Depending on the area, jitter may appear in a picture received by the tuner, as conditions of signals received by the tuner are different from area to area. To correct this kind of problem, the function of the System Codec AVIO control section for adjusting signals received by the tuner can be used.

How to enter setting modes: To enter General Setting mode, press the ESC key then the CHP/TIM key of the remote control unit for service. To enter Specific Channel Setting mode, press the DIG/ANA key in General Setting mode.

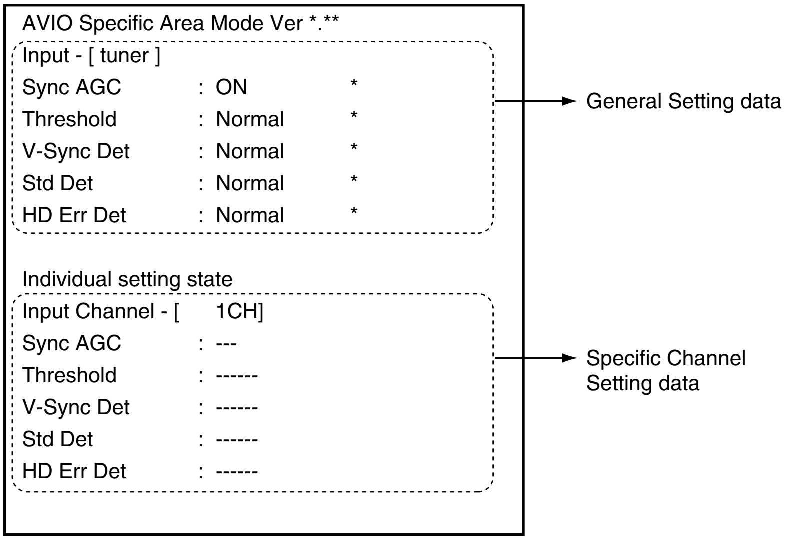
How to exit setting modes: Press the ESC key. The setting mode is exited, the OSD disappears.

1. Specific Channel Setting mode

This mode is entered when the DIG/ANA key is pressed in General Setting mode. In this mode, specific settings can be made for up to 12 channels. For channels that do not have specific settings, the settings of General Setting mode are applied.
Display in Specific Channel Setting mode (A picture from the tuner can be viewed using the semitransparent OSD display.)

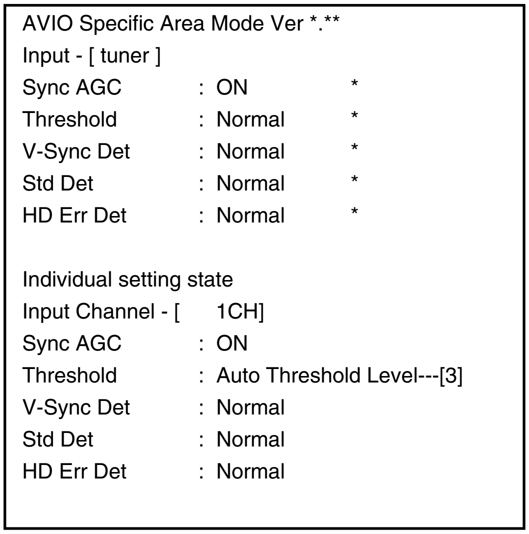
[Display in Specific Channel Setting mode]

[When specific channel settings have NOT been made]



```
AVIO Specific Area Mode Ver *.**
Input - [ tuner ]
Sync AGC        :  ON          *
Threshold       :  Normal      *
V-Sync Det      :  Normal      *
Std Det         :  Normal      *
HD Err Det      :  Normal      *

Individual setting state
Input Channel - [     1CH]
Sync AGC        :  ---
Threshold       :  ------
V-Sync Det      :  ------
Std Det         :  ------
HD Err Det      :  ------
```

[When specific channel settings have been made]



```
AVIO Specific Area Mode Ver *.**
Input - [ tuner ]
Sync AGC        :  ON          *
Threshold       :  Normal      *
V-Sync Det      :  Normal      *
Std Det         :  Normal      *
HD Err Det      :  Normal      *

Individual setting state
Input Channel - [     1CH]
Sync AGC        :  ON
Threshold       :  Auto Threshold Level---[3]
V-Sync Det      :  Normal
Std Det         :  Normal
HD Err Det      :  Normal
```

∗ : setting is the default.

- If a channel that does not have specific settings is displayed, the setting figures are displayed as hyphens (--).
  If the setting figures are not displayed as hyphens, those settings have been specifically set even if they are identical to the default settings or those of General Setting mode.
- The channels to be displayed in "Input Channel" are as follows:
  - In a case of line input: L1-L3, DV
  - In a case of tuner input: Received channel (a channel to be set in specific channel settings)

Table 2: Key operations in Specific Channel Setting mode

(effective only during recording/playback stop)

Key	Operation	Setting (∗: Default)	Remarks
DIG/ANA	Switches cyclically between General Setting mode and Specific Channel Setting mode.	–	–
INPUT SELECT, CHANNEL +/– (∗R)	Switches inputs or channels.	–	–
[SIDE A], [SIDE B]	Sets Sync AGC.	ON (∗) / OFF	–
[Rev ×3], [×3 Fwd]	Sets Threshold level.	(∗) Normal Auto Threshold Level Manual Threshold Level Pedestal Level	–
[Rev CHAPTER SKIP] [CHAPTER SKIP Fwd]	Sets Threshold level.	According to the setting of Threshold, the values can be changed within the range mentioned below.	–
		• Normal: The value is fixed, with no display of the value.	–
		• Auto Threshold Level: 0-8 (Default: 0)	–
		• Manual Threshold Level: 0-8 (Default: 0)	–
		• Pedestal Level: 0-8 (Default: 0)	–
[Rev SCAN], [SCAN Fwd]	Sets V-Sync Det.	Normal (∗) / Short / Long	–
[Rev STILL STEP], [STILL STEP Fwd]	Sets Std Det.	Normal (∗) / Non STD	–
[SPEED +], [SPEED -]	HD Err Det	Normal (∗) / Fast / Stop	–
PLAY	All channels assigned to have specific settings are canceled, and the specific settings are reset to their default values.	–	Settings of General Setting mode are not affected.
CLEAR	Initializes the setting of Specific Channel Setting mode.	–	Pressing the key resets the settings of Specific Channel Setting mode for that channel to the initial values. Settings of General Setting mode are not affected.
PAUSE	The specific-setting data for the currently selected channel are reset to their default values. (But the assignment of a channel having specific settings is not canceled.)	–	Settings of General Setting mode are not affected (retained).
ESC	Exits AVIO setting for specific areas, clearing the OSD.	–	–

∗R: Refers to keys on the remote control unit supplied with this unit. The keys without "R" refer to the remote control unit for service.

- Screen display when Specific Channel settings are made on 12 (maximum) channels: In such a case. If a channel which does not have specific settings is selected, the individual setting state for that channel is not displayed, as shown in the figure below, and the settings cannot be modified. In such a case, if you wish to make Specific Channel Settings for the currently selected channel, you must clear the Specific Channel Settings for one or more channels beforehand.

[With 12 channels having specific settings,
when the currently selected channel does not have specific settings]

```
AVIO Specific Area Mode
Input - [ TUNER ]
Sync AGC        :  ON          *
Threshold       :  Normal      *
V-Sync Det      :  Normal      *
Std Det         :  Normal      *
HD Err Det      :  Normal      *

Individual setting state
  Sorry !
You can store only 12 channels
for Specific Area mode.
```

2. General Setting mode

This mode can be entered only during recording/playback stop. In this mode, each item and its current settings are displayed on the OSD. The currently selected input mode (TUNER or LINE) is displayed. If L1, L2, L3 or DV is selected for input, general settings for the line input can be made, and if TUNER is selected, general settings for the tuner input can be made.

[General Setting mode] (⁎2)

```
AVIO Specific Area Mode
Input - [ tuner ]
Sync AGC        :  ON          ⁎
Threshold       :  Normal      *
V-Sync Det      :  Normal      *
Std Det         :  Normal      *
HD Err Det      :  Normal      ⁎
```

⁎ : setting is the default.

Table 1: Key operations in General Setting mode (effective only during recording/playback stop)

Key	Operation	Setting (∗: Default)	Remarks
INPUT SELECT, CHANNEL +/– (∗R)	Switches inputs or channels.	–	–
[SIDE A], [SIDE B]	Sets Sync AGC.	ON (∗) / OFF	–
[Rev ×3], [×3 Fwd]	Sets Threshold level.	(∗) Normal Auto Threshold Level Manual Threshold Level Pedestal Level	–
[Rev CHAPTER SKIP] [CHAPTER SKIP Fwd]	Sets Threshold level.	According to the setting of Threshold, the values can be changed within the range mentioned below.	–
		• Normal: The value is fixed, with no display of the value.	–
		• Auto Threshold Level: 0-8 (Default: 0)	–
		• Manual Threshold Level: 0-8 (Default: 0)	–
		• Pedestal Level: 0-8 (Default: 0)	–
[Rev SCAN], [SCAN Fwd]	Sets V-Sync Det.	Normal (∗) /Short/Long	–
[Rev STILL STEP], [STILL STEP Fwd]	Sets Std Det.	Normal (∗) /Non STD	–
[SPEED +], [SPEED -]	HD Err Det	Normal (∗) /Fast/Stop	
CLEAR	Initializes the setting of General Setting mode.	–	Pressing the key resets all settings of General Setting mode to the initial values. Settings of Specific Channel Setting mode are not affected (they are retained).
ESC	Exits AVIO setting for specific areas, clearing the OSD.	–	–

∗R: Refers to keys on the remote control unit supplied with this unit. The keys without "R" refer to the remote control unit for service.

∗1 : In General Setting mode, if the channel displayed has specific settings, the following will be displayed.

[Display in General Setting mode when the channel currently displayed has specific settings]

```
AVIO Specific Area Mode  Ver*.**
Input - [tuner ]
Sync AGC        :  ON          *
Threshold       :  Normal      *
V-Sync Det      :  Normal      *
Std Det         :  Normal      *
HD Err Det      :  Normal      *

      This channel is set up
      individually.
```

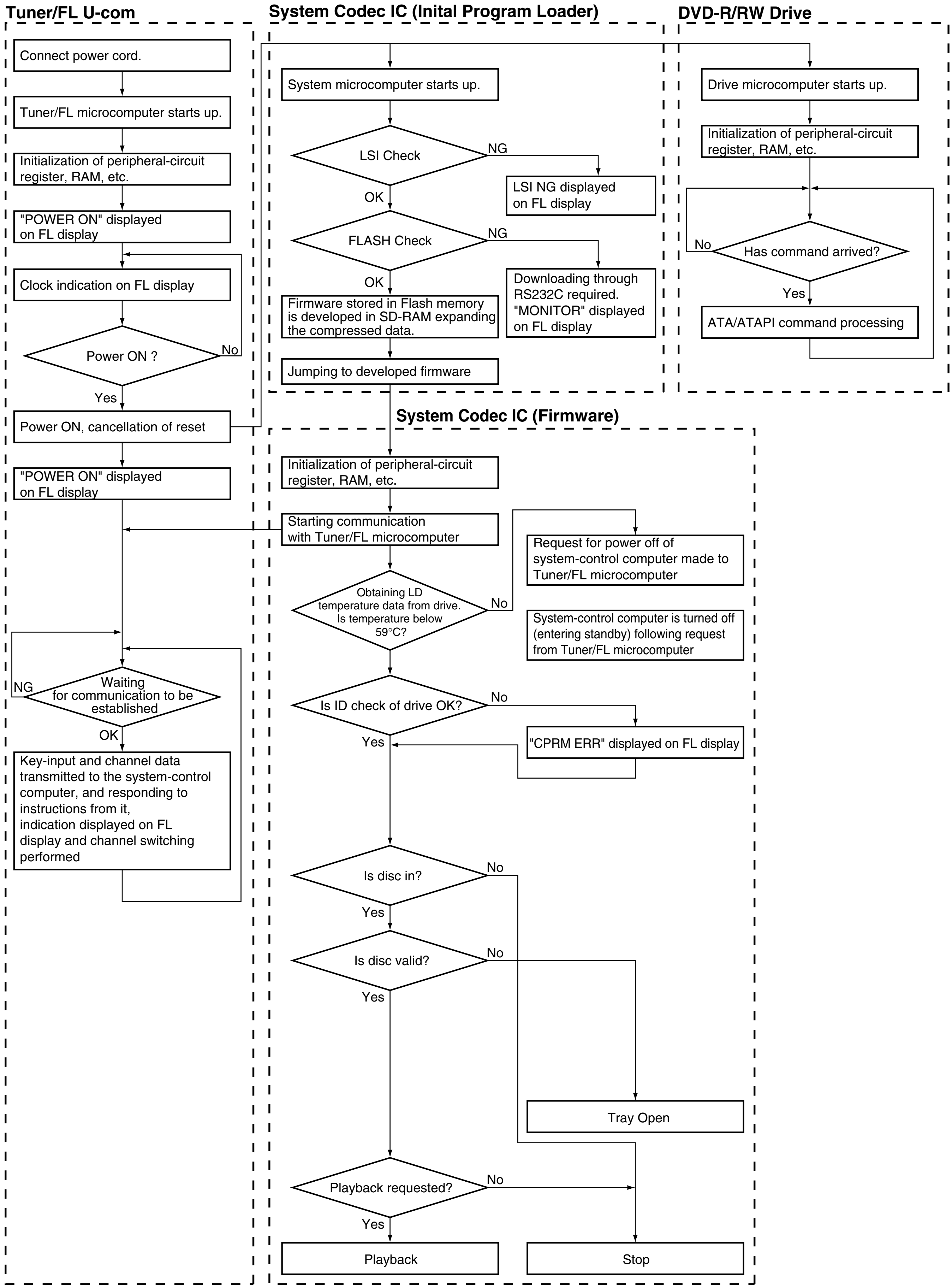
7.1.7 AGING MODE

Notes:

Commands from the remote control unit are accepted during Aging mode.
If Aging mode is quit using the ESC key, indications on the FL display will return to normal dislay.
Cancel timer settings before entering Aging mode.
Set the recording rate beforehand. It cannot be changed during Aging mode.

	Aging for the DVD-RW	**Aging for the DVD-R**
To enter Aging mode	Press the DVD key to switch to DVD. Install a recordable DVD-RW disc. After disc detection, press the ESC key then the REP.B key on the remote control unit for servicing to enter Aging mode.	Press the DVD key to switch to DVD. Install a recordable DVD-R disc. After disc detection, press the ESC key then the REP.B key on the remote control unit for servicing to enter Aging mode.
To quit Aging mode	Press the ESC key on the remote control unit for servicing to quit Aging mode and return to Normal mode. This also results in the following: • If during recording: Recording is stopped. • If during playback: Playback is paused. • If during initialization: The unit stops after initialization is finished. • If the tray is being opened/closed: The unit stops after the tray is opened/closed.	Press the ESC key on the remote control unit for servicing to quit Aging mode and return to Normal mode. This also results in the following: • If during recording: Recording is stopped. • If during playback: Playback is paused.
Function	During Aging mode, the following operations are repeated in the order shown below. ① The tray opens. ② The tray closes. ③ Initialization ④ Recording for 60 minutes ⑤ Playback for 45 minutes ③ Initialization is performed according to the setting specified in "DVD-RW automatic initialization" (accessed by selecting "Unit Setting" then "Option"). During Aging, the number of loops is indicated on the FL display, as shown below. [AGING 0001] If an error is generated, the aging operation stops. **Note:** Indications on the FL display are retained, and this information is also retained as an OSD.	During Aging mode, the following operations are repeated in the order shown below. ① The tray opens. ② The tray closes. ③ Recording for 1 minute ④ Recording pause for 6 minutes ⑤ Recording stops. ⑥ Playback for 1 minute ⑦ Playback pause for 6 minutes ⑧ Playback stops. **Note:** A continuous test of the above operations is possible for approximately 23 hours. After ② the tray closes, disc detection is performed, and if 99 titles have already been registered, the unit stops there. The number of loops is retained and indicated on the FL display. An error indication is retained as an OSD. During Aging, the number of loops is indicated on the FL display, as shown below. [AGING 0001] If an error is generated, the aging operation stops. **Note:** Indications on the FL display are retained, and this information is also retained as an OSD. **Note:** Recording time depends on the recording rate set. For example, if the recording rate is MN32, only up to 60 titles can be registered. Check the setting for recording rate before performing aging.

7.1.8 SETUP SEQUENCE


Tuner/FL U-com
Connect power cord.
Tuner/FL microcomputer starts up.
Initialization of peripheral-circuit register, RAM, etc.
"POWER ON" displayed on FL display
Clock indication on FL display
Power ON ?
No
Yes
Power ON, cancellation of reset
"POWER ON" displayed on FL display
NG
Waiting for communication to be established
OK
Key-input and channel data transmitted to the system-control computer, and responding to instructions from it, indication displayed on FL display and channel switching performed
System Codec IC (Inital Program Loader)
System microcomputer starts up.
LSI Check
NG
LSI NG displayed on FL display
OK
FLASH Check
NG
Downloading through RS232C required. "MONITOR" displayed on FL display
OK
Firmware stored in Flash memory is developed in SD-RAM expanding the compressed data.
Jumping to developed firmware
DVD-R/RW Drive
Drive microcomputer starts up.
Initialization of peripheral-circuit register, RAM, etc.
No
Has command arrived?
Yes
ATA/ATAPI command processing
System Codec IC (Firmware)
Initialization of peripheral-circuit register, RAM, etc.
Starting communication with Tuner/FL microcomputer
Obtaining LD temperature data from drive. Is temperature below 59°C?
No
Request for power off of system-control computer made to Tuner/FL microcomputer
System-control computer is turned off (entering standby) following request from Tuner/FL microcomputer
Is ID check of drive OK?
No
"CPRM ERR" displayed on FL display
Yes
Is disc in?
No
Yes
Is disc valid?
No
Yes
Tray Open
Playback requested?
No
Yes
Playback
Stop

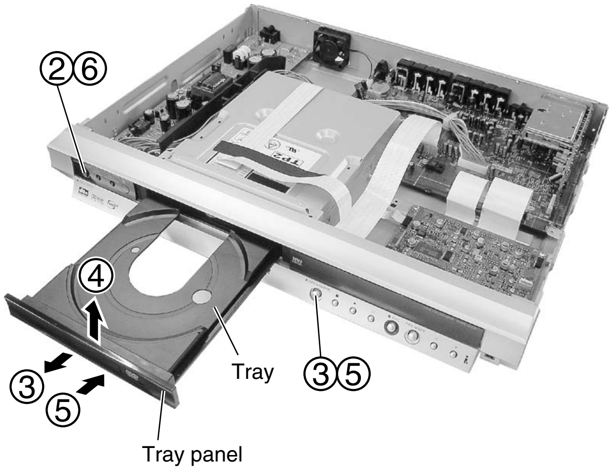
7.1.9 DISASSEMBLY

Note: Even if the unit shown in the photos and illustrations in this manual may differ from your product, the procedures described here are common.

Diagnosis of the MAIN Assy

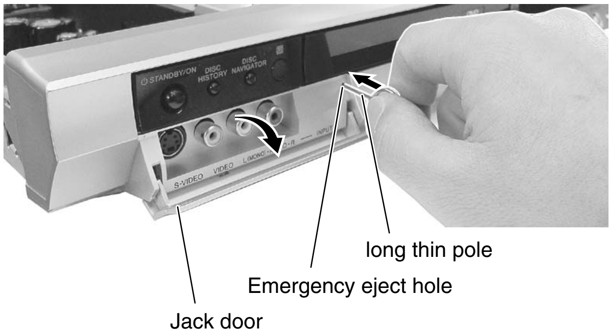
1 Bonnet S and Tray panel

① Remove the bonnet S by removing the eight screws.
② Press the ⏻ STANDBY/ON button to turn on the power.
③ Press the ⏏ OPEN/CLOSE button to open the tray.
④ Remove the tray panel.
⑤ Press the ⏏ OPEN/CLOSE button to close the tray.
⑥ Press the ⏻ STANDBY/ON button to turn off the power.


②⑥
④
Tray
③⑤
③
⑤
Tray panel

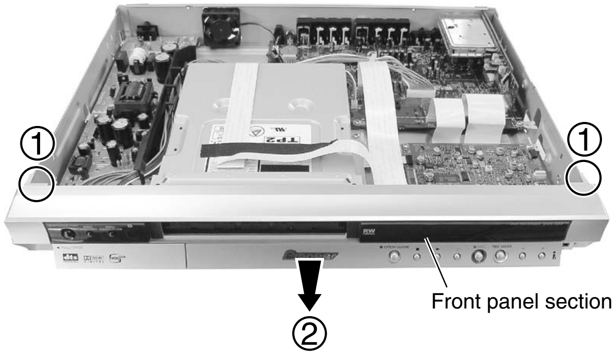
● How to open the tray when the power cannot be on

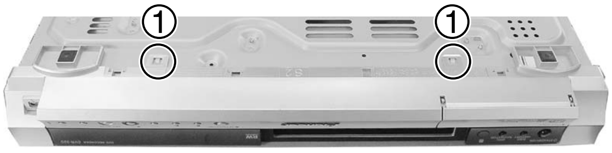
When the player cannot eject disc tray due to power failure or any other reasons, open the jack door, and use a long thin pole and push the emergency eject hole under the tray panel to eject.


STANDBY/ON
DISC HISTORY
DISC NAVIGATOR
S-VIDEO
VIDEO
L(MONO)
long thin pole
Emergency eject hole
Jack door

2 Front panel section

① Unhook the four hooks.
② Remove the front panel section.

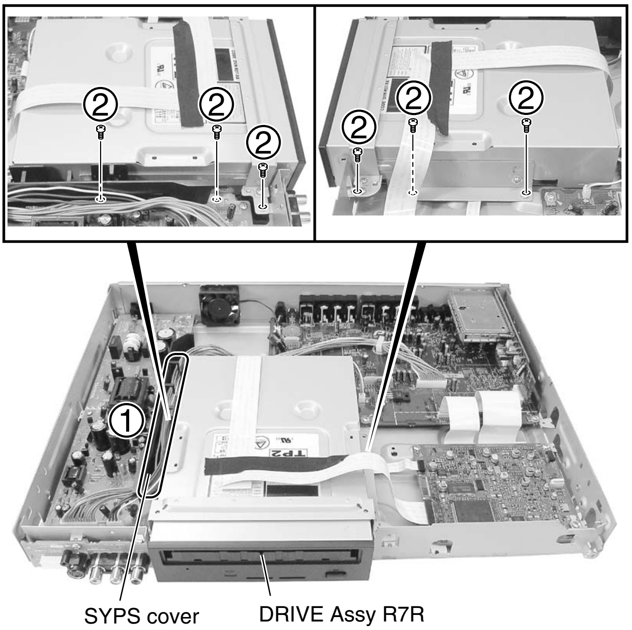

①
①
Front panel section
②



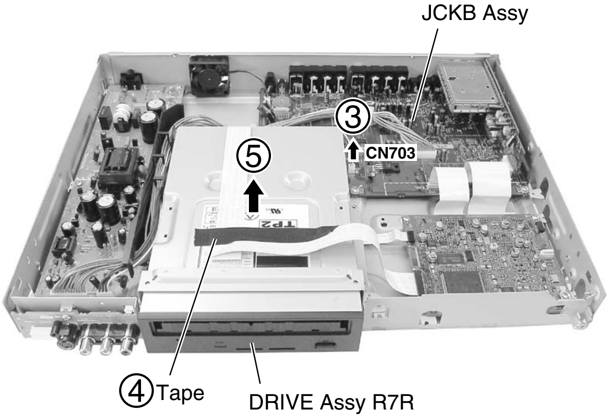
● **Bottom view**

3 DRIVE Assy R7R (DVD-R/RW WRITER)

① Remove the two jumper wires from the SYPS cover.
② Remove the six screws.

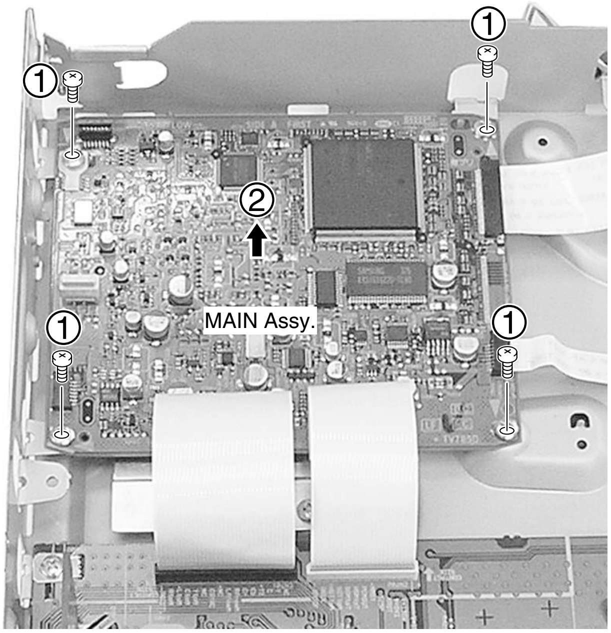

②
②
②
②
②
②
①
SYPS cover
DRIVE Assy R7R

③ Disconnect the connector.
④ Remove the tape.
⑤ Remove the DRIVE Assy R7R.


JCKB Assy
③
CN703
⑤
④Tape
DRIVE Assy R7R

4 MAIN Assy

① Remove the four screws.
② Stand the MAIN Assy.


①
①
②
MAIN Assy.
①
①

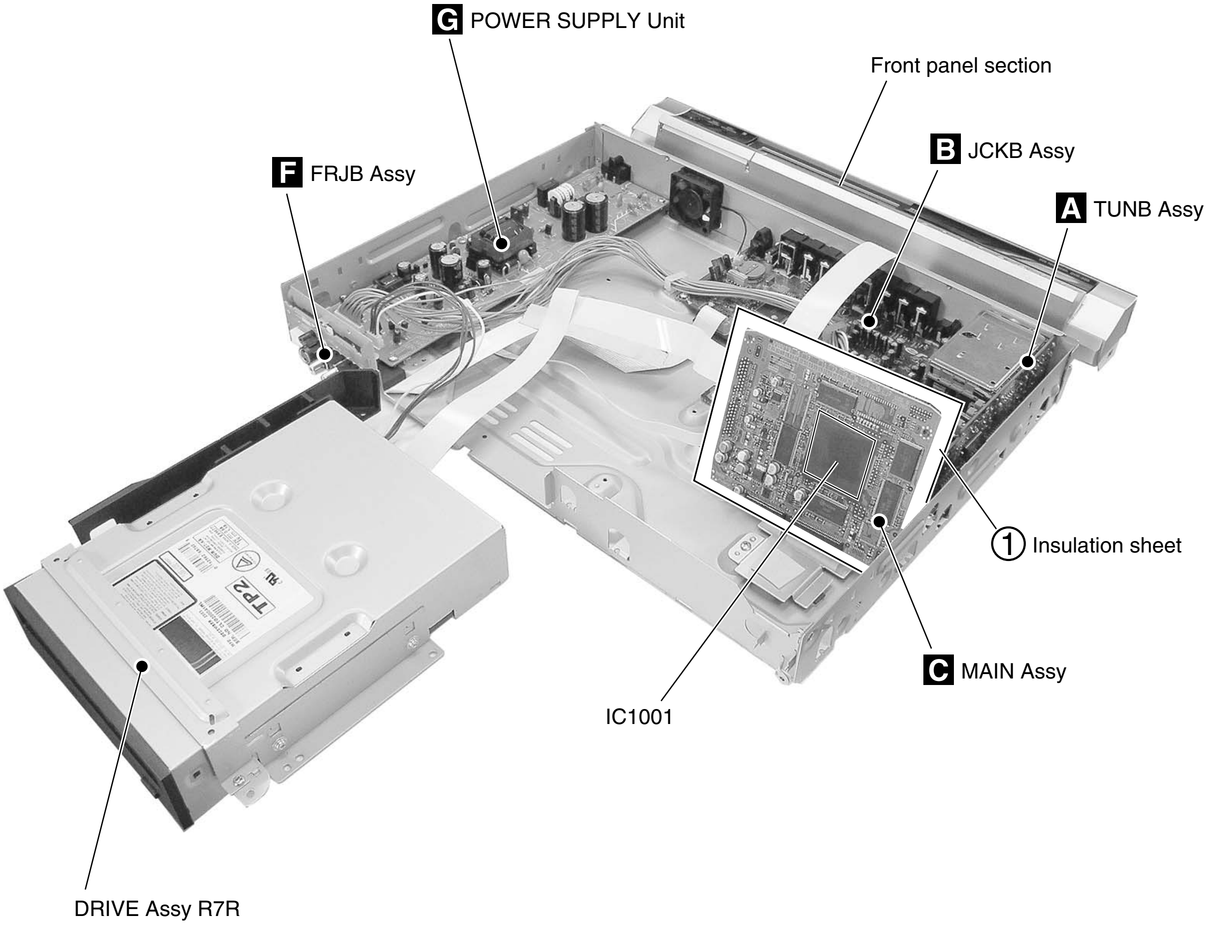
Note : This photograph may show a different model.
However, the method for disassembly is the same.

5 Diagnosis

① Insert the insulation sheet between the MAIN Assy and base chassis.

② Arrange the unit as shown in the photo below.

Caution :
Main IC (IC1001) on the MAIN Assy generate heat to arround 80 degrees.
Be careful when works.


G POWER SUPPLY Unit
Front panel section
B JCKB Assy
F FRJB Assy
A TUNB Assy
① Insulation sheet
C MAIN Assy
IC1001
DRIVE Assy R7R
TP2

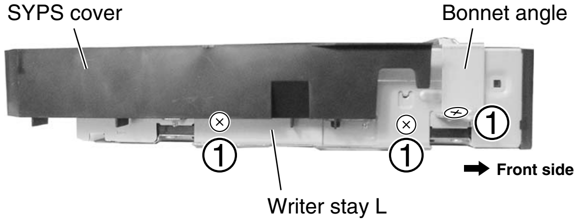
↓

Diagnosis

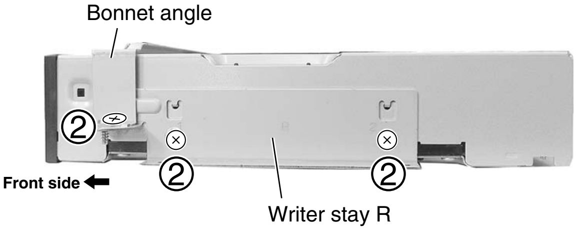
↓

Cleaning the pickup lens

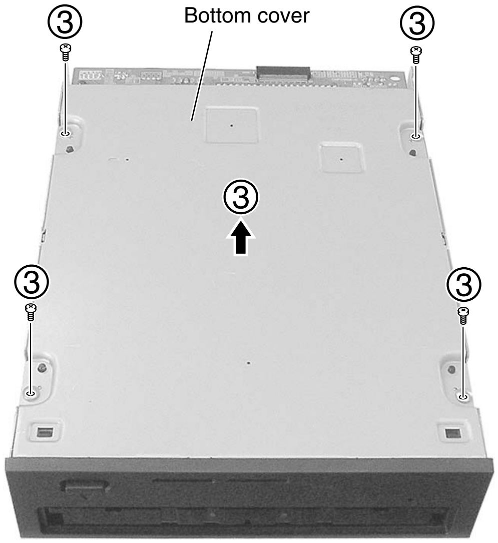
① Remove the writer stay L by removing the three screws with the bonnet angle and the SYPS cover.


SYPS cover
Bonnet angle
①
①
①
Front side
Writer stay L

② Remove the writer stay R by removing the three screws with the bonnet angle.


Bonnet angle
②
②
②
Front side
Writer stay R

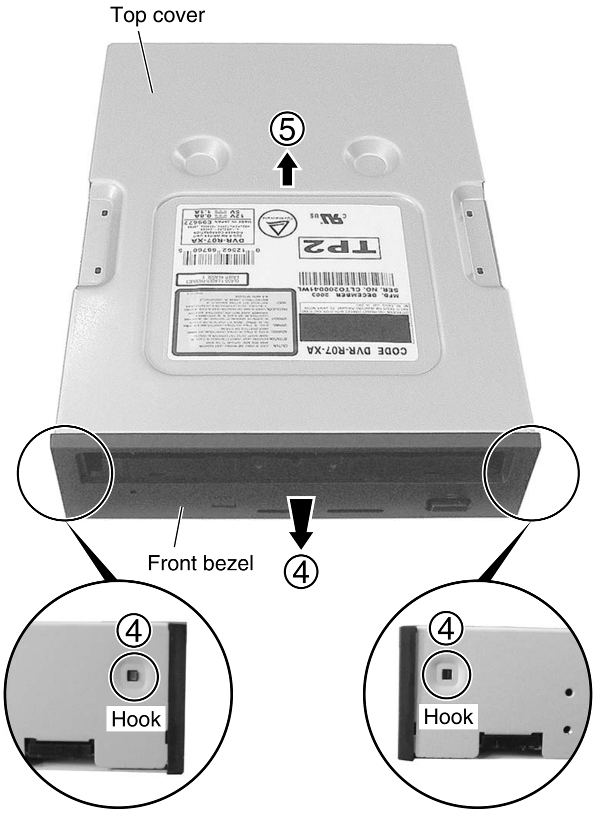
③ Remove the bottom cover by removing the four screws.


③
Bottom cover
③
③
③
③

● **Bottom view**

④ Remove the front bezel by unhooking the two hooks.

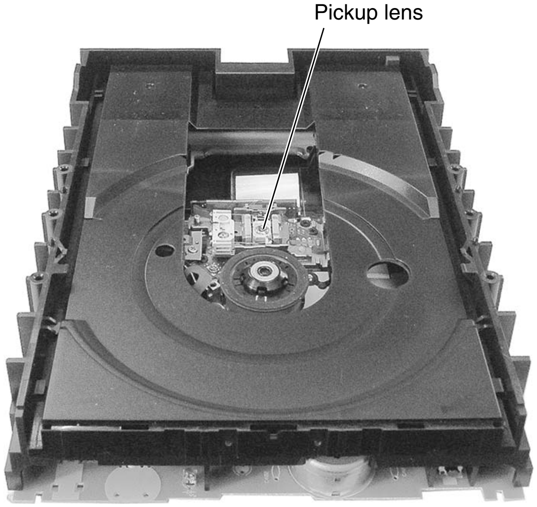
⑤ Remove the top cover.


Top cover
⑤
TP2
CODE DVR-R07-XA
Front bezel
④
④
Hook
④
Hook

⑥ Clean the pickup lens.

Before shipping out the product, be sure to clean the following positions by using the prescribed cleaning tools :

Cleaning liquid : GEM1004
Cleaning paper : GED-008


Pickup lens

7.2 IC

- The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

● **List of IC**

PEG034B, RS5C372A, LC75342M, LA73033M, AK5381VT, PST3428U, PST3809U, M65672WG-C

■ PEG034B (JCKB ASSY : IC202)

- TUFL Microcomputer

● **Pin Function**

No.	Pin Name	Signal Name	I/O	Function	Active
1	P95/ANEX0/CLK4	FLCLK	O	FL Driver communication line CLK	–
2	P94/DA1/TB4in	SYNC	I	C-Sync of input video	↑
3	P93/DA0/TB3in	AVLINKIN	I	Input line of NexTViewLink	–
4	P92/TB2in/Sout3	IR	I	Pulse input of remote control	–
5	P91/TB1in/Sin3	J_CLOCK	I		
6	P90/TB0in/CLK3	SYNCAFT	I	C-Sync of input video	↑
7	BYTE	BYTE	I		
8	CNVss	PGM	I	Communication line	
9	P87/XCin	NC	(O)		–
10	P86/XCout	NC	(O)		–
11	-RESET	XRESETIN	I	u-Con Reset	
12	Xout	XOUT	I		
13	Vss	GND	–		
14	Xin	XIN	I		
15	Vcc	VCC	–		
16	P85/-NMI	NMI	I		↓
17	P84/-INT2	NC	I		
18	P83/-INT1	SLICEONFB	I	Feedback from SLICEON pin	↑?
19	P82/-INT0	XINTRA	I	Alarm/interval interruption	↓
20	P81/TA4in	LED HDD	O	for HDD Model	H
21	P80/TA4out	LED DVD	O	for HDD Model	↑↓
22	P77/TA3in	NC	(O)		–
23	P76/TA3out	FANPWM	O	FAN power control	H
24	P75/TA2in	JOGB	I	Phase VOL input	↑↓
25	P74/TA2out	NC	(O)		–
26	P73/-CTS2/-RTS2/TA1in	IICRST	O		
27	P72/CLK2/TA1out	AVLINKOUT	O		
28	P71/RxD2/SCL/TA0in/TB5in	SCL	I/O	I2C communication (clock)	–
29	P70/TxD2/SDA/TA0out	SDA	I/O	I2C communication (data)	–
30	Vss2	GND	–		
31	LP2	LP2	O		
32	LP3	LP3	O		
33	LP4	LP4	O		
34	Vdd2	VDD2	–		
35	M2	M2	I	Mode switch	
36	M1	M1	I		
37	P11/SLICEON	SLICEON	O	Slicer operating signal	H?
38	P67/TxD1	TXD	O	Communication line for firmware download/monitor	–
39	P66/RxD1	RXD	I	Communication line for firmware download/monitor	–
40	P65/CLK1	SCLK	(O)	Communication line for firmware download/monitor	–

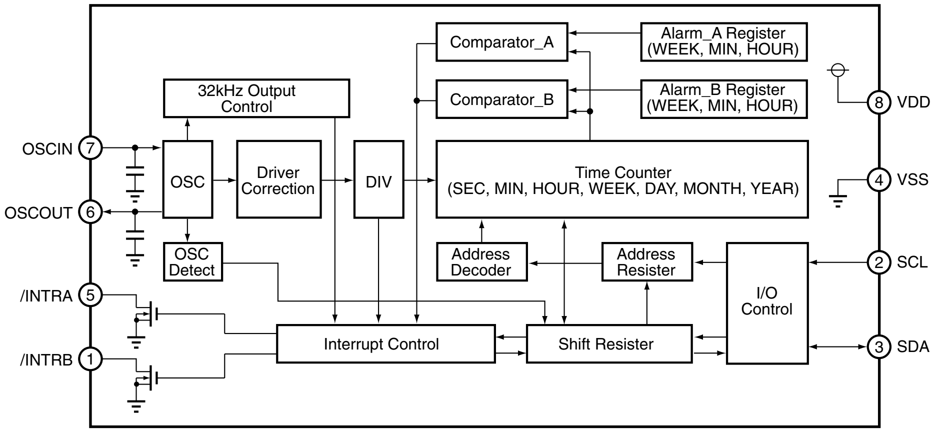
No.	Pin Name	Signal Name	I/O	Function	Active
41	P64/-CTS1/-RTS1/CLKS1	BUSY	O	Communication line for firmware download/monitor	–
42	P63/TxD0	SSTTOM	O	SYS controller communication line (Tuner → Main)	–
43	P62/RxD0	SSMTOT	I	SYS controller communication line (Main → Tuner)	–
44	P61/CLK0	SCK	I	SYS controller communication line (clock)	↑
45	P60/-CTS0/-RTS0	HSTTOM	O	Tuner → SYS handshake	L
46	P57/-RDY/CLKout	DLCONT	O	Voltage supply SW of FLASH-ROM writing	L
47	P56/ALE	WRT	O	Write signal	H
48	P55/-HOLD	SDAEEP	I/O	SDA line for EEPROM	–
49	P54/-HLDA	SCLEEP	O	SCL line for EEPROM	–
50	P53/BCLK	VOLCE	O	Communication line CE	H
51	P52/-RD	VOLDATA	O	Communication line DATA	–
52	P51/-WRH/-BHE	VOLCLK	O	Communication line CLK	–
53	P50/-WRL/-WR	DLCE	I	Signal for serial I/O mode selection	–
54	P47/-CS3	S1	O		
55	P46/-CS2	LET	O	Letterbox signal add	H
56	P45/-CS1	SQU	O	Squeeze signal add	–
57	P44/-CS0	BLANK	I		
58	P43/A19	XTHROU	O		
59	P42/A18	NC	(O)		–
60	P41/A17	NC	(O)		–
61	P40/A16	SWVION	O	Independent source SW for video I/O output circuit	H
62	P37/A15	SWSTBY	O	Standby mode of video input selector	H
63	P36/A14	NC	(O)		
64	P35/A13	NC	(I)		
65	P34/A12	SCTHRU	O		
66	P33/A11	NC	(I)		
67	P32/A10	SDET3	I	S terminal detection of Video input 3	L
68	P31/A9	SDET2	I	S terminal detection of Video input 2	L
69	Vcc	VCC	–		
70	P30/A8	SDET1	I	S terminal detection of Video input 1	L
71	Vss	GND	–		
72	P27/A7	NC	(O)		–
73	P26/A6	NC	(O)		–
74	P25/A5	NC	(O)		–
75	P24/A4	NC	(O)		–
76	P23/A3	P_SAVEBS	O		
77	P22/A2	FOMO	O		–
78	P21/A1	M1ONTA	O		–
79	P20/A0	P_CONT	O	System Power ON	H
80	P17/D15/-INT5	NC	(O)		–

No.	Pin Name	Signal Name	I/O	Function	Active
81	P16/D14/-INT4	HSMTOT	I	SYS → Tuner handshake	↓
82	P15/D13/-INT3	DCTRI	I		
83	P14/D12	MUTE	O	MUTE control	H
84	P13/D11	SU/SAPID	I	SAP detection	H
85	P12/D10	ST/STID	I	Stereo detection (STID)	H
86	P11/D9	XRESET	O	System Reset output	L
87	P10/D8	LDASH	O		
88	P07/D7	STBYQ	O		
89	P06/D6	LM/	O		
90	P05/D5	I/BG	O		
91	P04/D4	XP_SAVE	O		
92	P03/D3	TUON	O	Tuner power	H
93	P02/D2	YCSW	O		
94	P01/D1	RSTCTL	O	Reset signal mask from the system controller	L
95	P00/D0	FLPON	O	FL Driver Power ON	H
96	P107/AN7/-KI3	MODEL1	A/D IN	Input for destination judgment	–
97	P106/AN6/-KI2	MODEL2	A/D IN	Input for destination judgment	–
98	P105/AN5/-KI1	AGC	A/D IN	Field intensity detection	–
99	P104/AN4/-KI0	FUNC	A/D IN		
100	P103/AN3	KEY2	A/D IN	Main unit key input	–
101	P102/AN2	KEY1	A/D IN	Main unit key input	–
102	P101/AN1	NC	–		
103	Avss	GND	–		
104	P100/AN0	AFT	A/D IN	AFT voltage input	–
105	VREF	VREF	–		
106	AVcc	AVCC	–		
107	P97/-ADTRG/Sin4	FLSTB	O	Communication line strobe of FL driver	L
108	Vdd1	VDD1	–		
109	SYNCIN	SYNCTEXT	I	Video input for sync. sep.	
110	SVREF	SLICE	I	Slice level input	
111	Vss1	GND	–		
112	Vdd3	VDD3	–		
113	CVIN1	CVIN1	I	Video input for teletext	
114	Vss3	GND	–		
115	FSCIN	FSCIN	I	Fsc input	
116	P96/ANEX1/Sout4	FLDATA	O	Communication line data of FL driver	–

RS5C372A (JCKB ASSY : IC203)

- Real Time Clock IC

● Block Diagram


Comparator_A
Alarm_A Register (WEEK, MIN, HOUR)
Comparator_B
Alarm_B Register (WEEK, MIN, HOUR)
32kHz Output Control
OSCIN 7
OSCOUT 6
OSC
Driver Correction
DIV
Time Counter (SEC, MIN, HOUR, WEEK, DAY, MONTH, YEAR)
8 VDD
4 VSS
OSC Detect
Address Decoder
Address Resister
I/O Control
2 SCL
/INTRA 5
/INTRB 1
Interrupt Control
Shift Resister
3 SDA

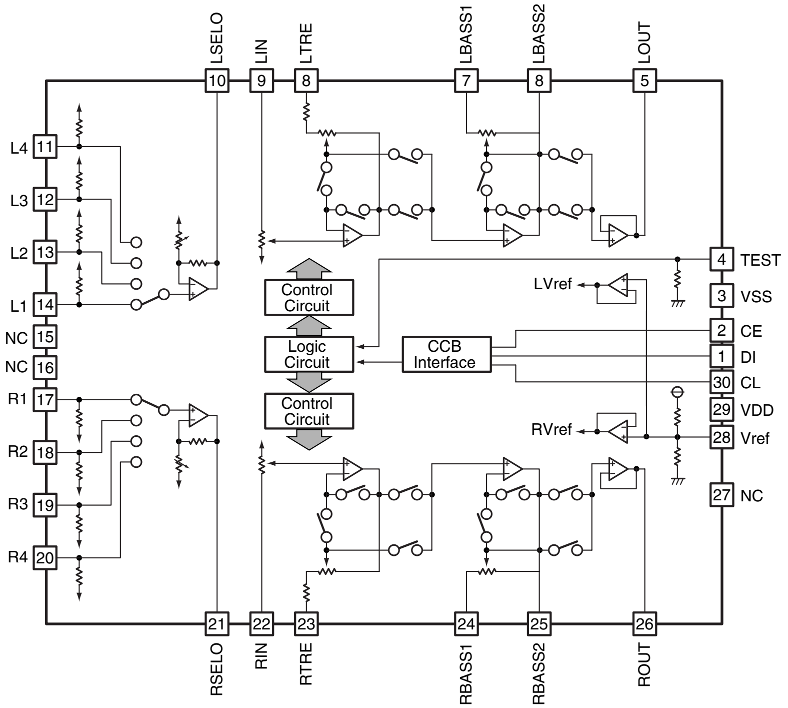
● Pin Function

No.	Pin Name	I/O	Function	
1	/INTRB	O	Interruption output B The output of 32.768kHz (in 32768Hz crystal use), cycled interrupt for CPU, or output alarm interrupt (ALARM_B). This pin output 32.768kHz when activated power from 0V. Nch open drain output.	
2	SCL	I	Shift clock input Synchronize with this clock, and input and output data from a SDA terminal. Exceed VDD, and can input to 6V.	
3	SDA	I/O	Serial input and output Synchronize with SCL, and input and output writing data or readout data. Exceed VDD, and can input to 6V. Nch open drain output in the output.	
4	VSS	–	Ground pin	
5	/INTRA	O	Interruption output A Cycled interrupt for CPU, or output alarm interruption (ALARM_A, ALARM_B). This pin becomes an OFF state when activated power from 0V. N ch open drain output.	
6	OSCOUT	O	Oscillation circuit output	Connect a crystal resonator of 32.768kHz or 32.000kHz between OSCIN and OSCOUT, and constitute oscillation circuit. (component parts of oscillation circuit except crystal resonator have it built-in.)
7	OSCIN	I	Oscillation circuit input	
8	VDD	–	Positive supply input	

LC75342M (JCKB ASSY : IC601)

- Electric Volume IC

● Block Diagram


LSELO
LIN
LTRE
LBASS1
LBASS2
LOUT
10
9
8
7
8
5
L4 11
L3 12
L2 13
L1 14
NC 15
NC 16
R1 17
R2 18
R3 19
R4 20
4 TEST
3 VSS
2 CE
1 DI
30 CL
29 VDD
28 Vref
27 NC
LVref
RVref
Control Circuit
Logic Circuit
Control Circuit
CCB Interface
21
22
23
24
25
26
RSELO
RIN
RTRE
RBASS1
RBASS2
ROUT

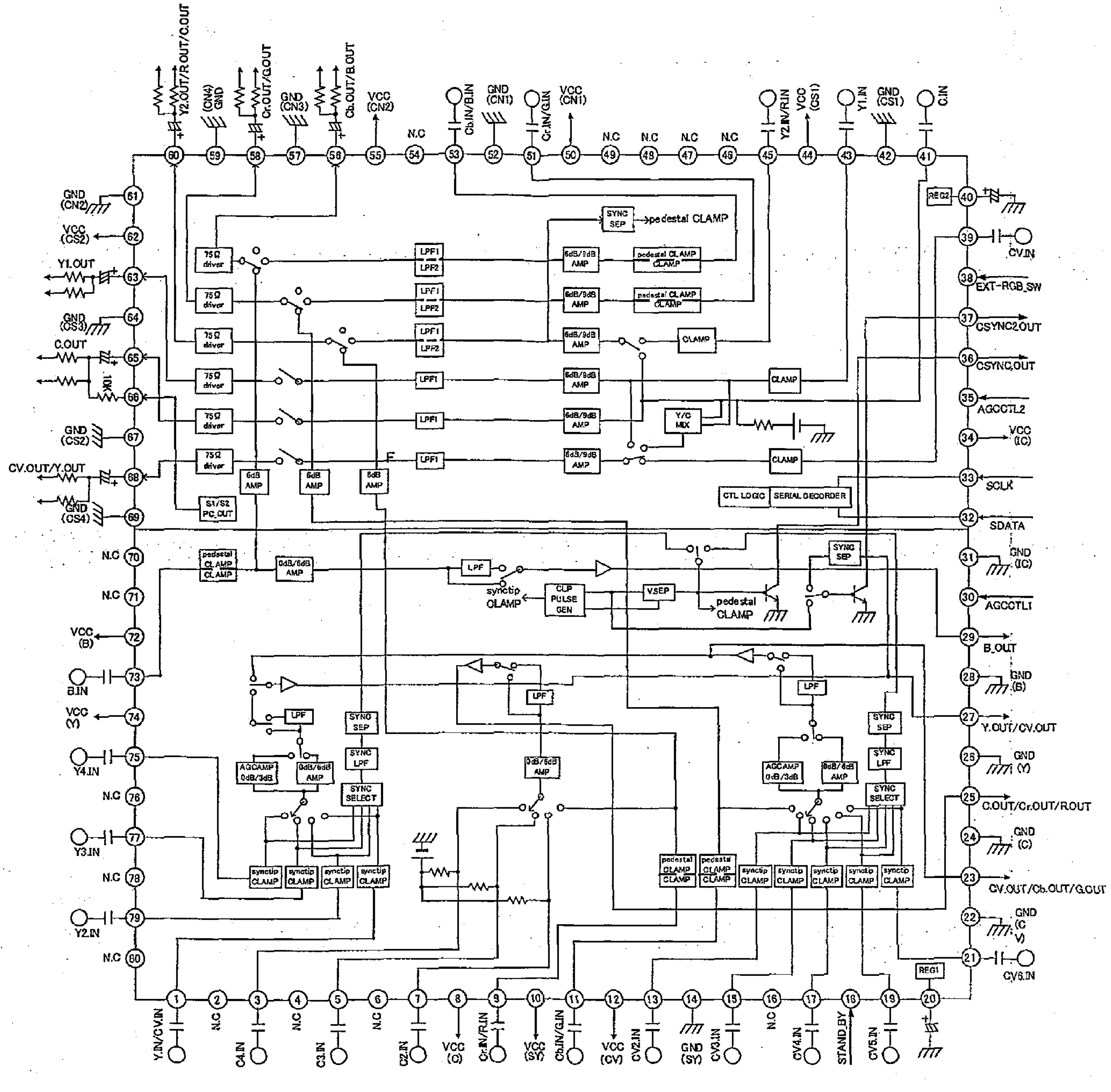
● Pin Function

No.	Pin Name	Function	No.	Pin Name	Function
1	DI	Serial data input for control	16	NC	Not connected
2	CE	Chip enable pin Data are written in the internal latch by a timing of "H" → "L", and each analog switch works. Data transfer is enabled by "H" level.	17	R1	Input signal pin
3	VSS	Ground pin	18	R2	
4	TEST	Pin for electronic volume test Set to VSS electric potential.	19	R3	
5	LOUT	Volume and equalizer output pin	20	R4	
6	LBASS2	Capacitor and resistor connection pins for bus bandpass filter	21	RSELO	Input selector output pin
7	LBASS1		22	RIN	Volume and equalizer input pin
8	LTRE	Capacitor connection pin for treble bandpass filter	23	RTRE	Capacitor connection pin for treble bandpass filter
9	LIN	Volume and equalizer input pin	24	RBASS1	Capacitor and resistor connection pins for bus bandpass filter
10	LSELO	Input selector output pin	25	RBASS2	
11	L4	Input signal pins	26	ROUT	Volume and equalizer output pin
12	L3		27	NC	Not connected
13	L2		28	Vref	0.5XVDD voltage generation block
14	L1		29	VDD	Power supply pin
15	NC	Not connected	30	CL	Clock input pin for control

LA73033M (JCKB ASSY : IC701)

- Video selector and Video driver

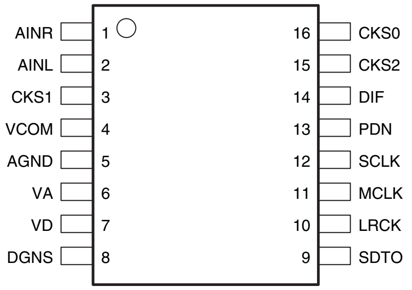
● Block Diagram


Y2.OUT/R.OUT/C.OUT
GND (CN4)
Cr.OUT/G.OUT
GND (CN3)
Cb.OUT/B.OUT
VCC (CN2)
N.C
Cb.IN/B.IN
GND (CN1)
Cr.IN/G.IN
VCC (CN1)
N.C
N.C
N.C
N.C
Y2.IN/R.IN
VCC (CS1)
Y1.IN
GND (CS1)
C.IN
60
59
58
57
56
55
54
53
52
51
50
49
48
47
46
45
44
43
42
41
GND (CN2)
VCC (CS2)
Y1.OUT
GND (CS3)
C.OUT
10K
GND (CS2)
CV.OUT/Y.OUT
GND (CS4)
N.C
N.C
VCC (B)
B.IN
VCC (Y)
Y4.IN
N.C
Y3.IN
N.C
Y2.IN
N.C
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
REG2
40
39
CV.IN
38
EXT-RGB_SW
37
CSYNC2.OUT
36
CSYNC.OUT
35
AGCCTL2
34
VCC (IC)
33
SCLK
32
SDATA
31
GND (IC)
30
AGCCTL1
29
B.OUT
28
GND (B)
27
Y.OUT/CV.OUT
26
GND (Y)
25
C.OUT/Cr.OUT/R.OUT
24
GND (C)
23
CV.OUT/Cb.OUT/G.OUT
22
GND (C V)
21
CV6.IN
20
REG1
SYNC SEP
pedestal CLAMP
75Ω driver
LPF1
LPF2
6dB/9dB AMP
pedestal CLAMP CLAMP
CLAMP
Y/C MIX
6dB AMP
S1/S2 PC.OUT
CTL LOGIC
SERIAL DECORDER
pedestal CLAMP CLAMP
0dB/6dB AMP
LPF
synctip CLAMP
CLP PULSE GEN
V.SEP
pedestal CLAMP
SYNC SEP
SYNC LPF
SYNC SELECT
AGCAMP 0dB/3dB
0dB/6dB AMP
synctip CLAMP
pedestal CLAMP CLAMP
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
Y.IN/CV.IN
N.C
C4.IN
N.C
C3.IN
N.C
C2.IN
VCC (C)
Cr.IN/R.IN
VCC (SY)
Cb.IN/G.IN
VCC (CV)
CV2.IN
GND (SY)
CV3.IN
N.C
CV4.IN
STAND_BY
CV5.IN

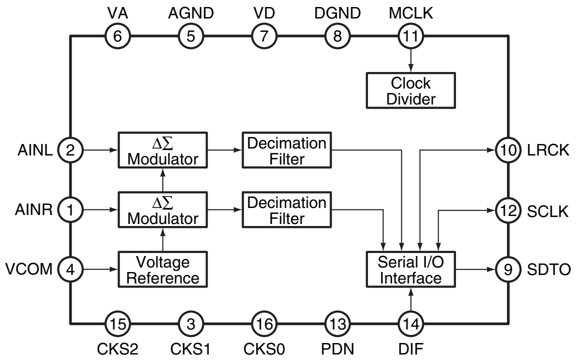
AK5381VT (MAIN ASSY : IC3101)

- 96kHz 24 bit ΔΣ ADC

● Pin Arrangement (Top view)


AINR 1
AINL 2
CKS1 3
VCOM 4
AGND 5
VA 6
VD 7
DGNS 8
9 SDTO
10 LRCK
11 MCLK
12 SCLK
13 PDN
14 DIF
15 CKS2
16 CKS0

● Block Diagram


VA 6
AGND 5
VD 7
DGND 8
MCLK 11
Clock Divider
AINL 2
AINR 1
VCOM 4
ΔΣ Modulator
ΔΣ Modulator
Voltage Reference
Decimation Filter
Decimation Filter
Serial I/O Interface
10 LRCK
12 SCLK
9 SDTO
15 CKS2
3 CKS1
16 CKS0
13 PDN
14 DIF

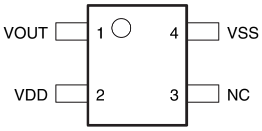
● Pin Function

No.	Pin Name	I/O	Function
1	AINR	I	R ch analog input
2	AINL	I	L ch analog input
3	CKS1	I	Mode select 1
4	VCOM	O	Common voltage output, bias voltage of VA/2 and ADC input
5	AGND	–	Analog ground
6	VA	–	Analog power supply, 4.5V to 5.5V
7	VD	–	Digital power supply, 2.7 to 5.5V (fs = 4k to 48kHz), 3.0 to 5.5V (fs = 48k to 96kHz)
8	DGND	–	Digital ground
9	SDTO	O	Audio serial data output, outputs "L" in the power down mode.
10	LRCK	I/O	Channel clock I/O, outputs "L" by master mode in the power down mode.
11	MCLK	I	Master clock input
12	SCLK	I/O	Audio serial data clock, outputs "L" by master mode in the power down mode.
13	PDN	I	Power down mode "H": power up, "L": power down
14	DIF	I	Audio interface format, "H" : 24 bit I2S compatibility, "L" : 24 bit MSB justify
15	CKS2	I	Mode select 2
16	CKS0	I	Mode select 0

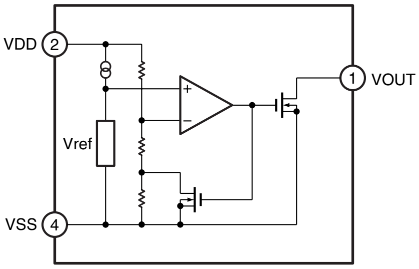
PST3428U (MAIN ASSY : IC4003)

- Reset IC

● Pin Arrangement (Top view)


VOUT
1
4
VSS
VDD
2
3
NC

● Block Diagram


VDD 2
1 VOUT
Vref
VSS 4
+
−

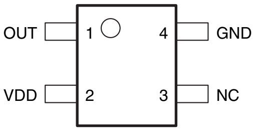
● Pin Function

No.	Pin Name	Function
1	VOUT	Reset signal output
2	VDD	Power supply / voltage detection
3	NC	Not connected
4	VSS	VSS

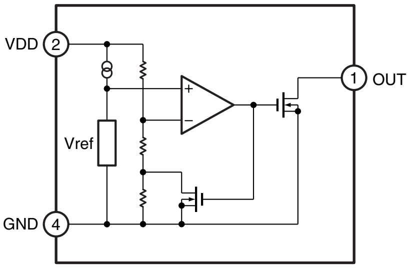
PST3809U (MAIN ASSY : IC4005)

- Reset IC

● Pin Arrangement (Top view)


OUT
1
4
GND
VDD
2
3
NC

● Block Diagram


VDD 2
1 OUT
Vref
GND 4
+
−

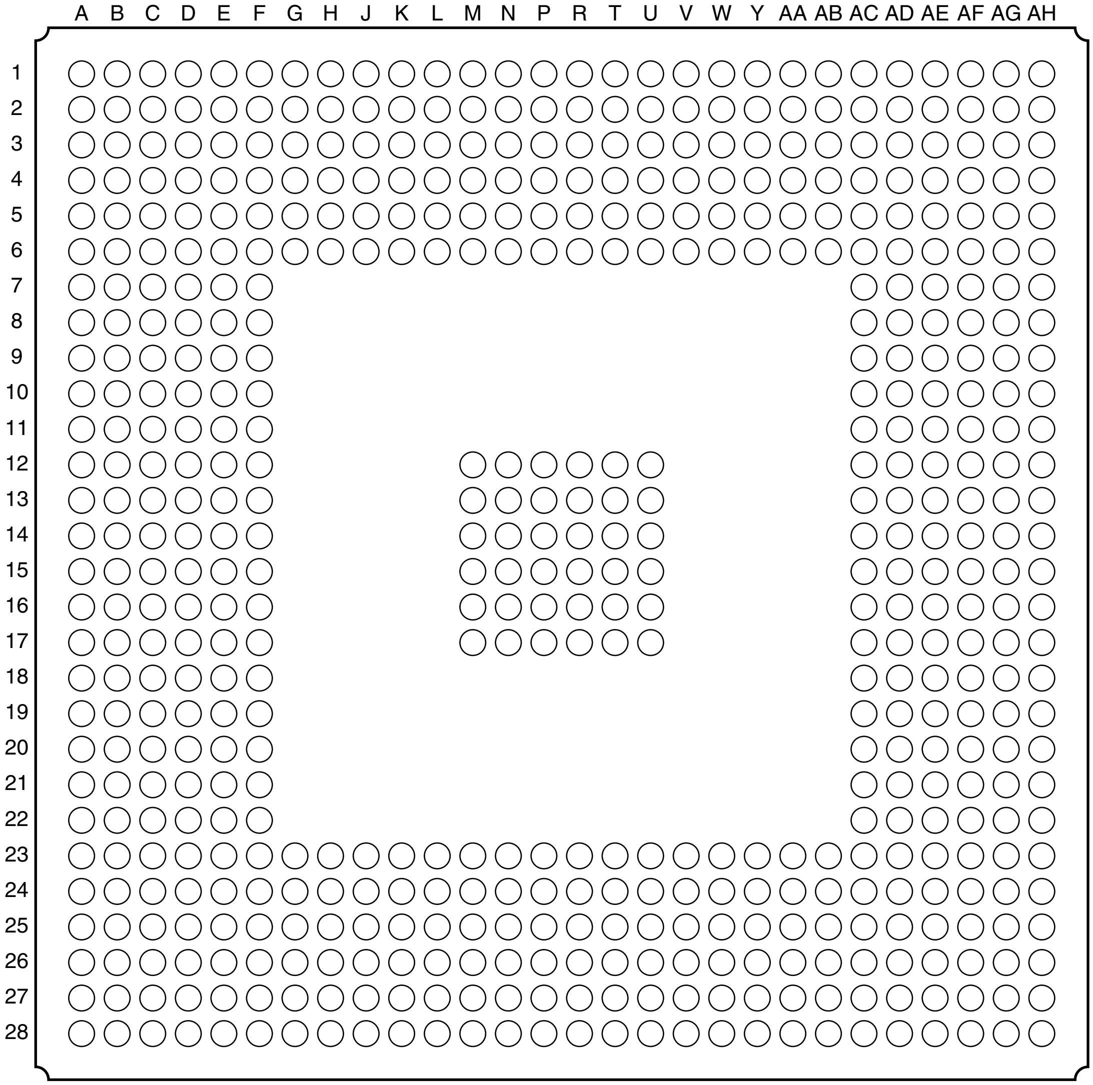
● Pin Function

No.	Pin Name	Function
1	OUT	Reset signal output
2	VDD	Power supply / voltage detection
3	NC	Not connected
4	GND	Ground

M65673WG-A (MAIN ASSY : IC1001)

- Signal Processing IC for DVD Recorder

● Pin Arrangement (Top view)


A B C D E F G H J K L M N P R T U V W Y AA AB AC AD AE AF AG AH
1
2
3
4
5
6
7
8
9
10
11
12
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24
25
26
27
28

● I/O buffer list

Buffer Name	Main Function	Remarks
PDIDGZ	Input buffer (5V tolerant)	
PDUDGZ	Input buffer (5V tolerant), pull-up	
PDDDGZ	Input buffer (5V tolerant), pull-down	
PDO04CDG	Output buffer, 4mA	
PDO08CDG	Output buffer, 8mA	
PDO0204DGZ	Output buffer, 2/4mA	
PDO0406DSGZ	Output buffer, 4/6mA	For SDRAM IF
PDO0406DSGZ×2	Output buffer, 8/12mA	For SDRAM IF
PDT0204DGZ	3 state output buffer, 2/4mA	
PDB04DGZ	Bidirectional buffer, 4mA	
PDB08DGZ	Bidirectional buffer, 8mA	
PDB0204DGZ	Bidirectional buffer, 2/4mA	
PDB0406DSGZ	Bidirectional buffer, 4/6mA	For SDRAM IF

● Pin Name list

	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	T	U	V	W	Y	AA	AB	AC	AD	AE	AF	AG	AH
28	VDD	EDATA[23]	EDATA[22]	EDATA[20]	EDATA[18]	EDATA[16]	EADRS[0]	EBS[0]	ERAS	EDQM	EDATA[6]	EDATA[3]	EDATA[0]	AVDDAD8	BG8	VRB8	AVDDAD8	VRM10	AVDDAD10	PACKETEN	WM2DTO[2]	VDD	WMCLKO	WM1DTO[4]	WM1DTI[1]	WM1DTI[3]	HKEYPLS	VDD
27	AT1DATA[12]	EDATA[24]	EDATA[25]	EDATA[21]	EDATA[19]	EDATA[17]	EADRS[1]	EBS[1]	ECS	EWE	EDATA[7]	EDATA[4]	EDATA[1]	AVSSAD8	GIN	VRT8	DVSSAD10	CVBSIN	VBGR10	STREAM	WM2DTQ[4]	WM2DTO[6]	WM1DTO[1]	WM1DTO[6]	WM1DTI[4]	PEDCTL	REC656O[1]	REC656O[3]
26	AT1DATA[8]	AT1DATA[13]	AT1DATA[15]	EDATA[26]	EDATA[29]	EDATA[30]	EADRS[2]	EADRS[10]	EADRS[11]	ECAS	EDATA[8]	EDATA[5]	EDATA[2]	DVSSAD8	CRIN	CIN	VRBD10	VRT10	NBC10	SYNC	WM2DTO[3]	WM1DTO[0]	WM1DTO[5]	WM1DTI[2]	WM1DTI[7]	ACCCTL	REC656O[2]	AVDD2DA10
25	AT1DATA[7]	AT1DATA[6]	AT1DATA[14]	EDATA[27]	EDATA28]	EDATA[31]	EADRS[4]	EADRS[6]	EADRS[8]	ECLKEN	EDATA[9]	EDATA[11]	EDATA[13]	DVDDAD8	AVDDAD8	AVSSAD8	VRB10	AVSSAD10	TSRW	WM2DTO[0]	WM2DTO[7]	WM1DTO[2]	WM1DTI[0]	WM1DTI[6]	AGCCTL	REC656O[5]	YOUT	AVSS2DA10
24	AT1DATA[2]	AT1DATA[1]	AT1DATA[5]	AT1DATA[10]	AT1DATA[14]	EDATA[3]	EADRS[5]	EADRS[7]	EADRS[9]	ECLKO	EDATA[10]	EDATA[12]	EDATA[14]	EDATA[15]	AVSSAD8	DVDDAD10	VRTD10	TSCLK	WM2DTO[1]	WM2DTO[4]	WM1DTO[3]	WM2DTC[1]	WM1DTI[5]	REC656O[0]	COUT	IREF[1]	ROUT	AVDD1DA10
23	AT1DIOW	AT1DMACK	AT1DATA[0]	AT1DATA[3]	AT1DATA[9]	GND	VDD3	VDD	GND	VDD3	VDD	GND	VDD3	VDD	GND	VDD2	VDD	GND	VDD2	VDD	GND	VDD3	VDD	REC656O[4]	AVDD1DA10	BOUT	DVACK	DVREQ
22	AT1ADR[1]	AT1INTRQ	AT1DIOR	AT1RESET	AT1DATA4]	VDD3																	VDD3	IREF[0]	AVSS1DA10	REC656O[6]	DVVIDEO[0]	DVVIDEO[1]
21	AT1CS[0]	AT1CS[1]	AT1ADR[0]	AT1IORDY	AT1DMARQ	VDD																	VDD	GOUT	REC656O[7]	DVVIDEO[3]	DVVIDEO[4]	PLL2AVSS
20	AT2DATA[11]	AT2DATA[12]	AT1DATA[13]	AT2DATA[14]	AT1ADR[2]	GND																	GND	DVVIDEO[2]	ADMCLKI	PLL2AVDD	DVVCLKI	DVVIDEO[7]
19	AT2DATA[6]	AT2DATA[7]	AT2DATA[8]	AT2DATA[10]	AT2DATA[15]	VDD3																	VDD3	R656CLKI	DVVIDEO[5]	REC656I[0]	REC656I[1]	REC656I[2]
18	AT2DATA[1]	AT2DATA[2]	AT2DATA[4]	AT2DATA[5]	AT2DATA[9]	VDD																	VDD	DVVIDEO[6]	REC656I[3]	REC656I[4]	REC656I[6]	REC656I[7]
17	AT2DIOW	AT2DMARQ	AT2RESET	AT2DATA[0]	AT2DATA[3]	GND						GND	GND	GND	GND	GND	GND						GND	REC656I[5]	PXCLK	DVVCLKO	PLLRST	TRST
16	AT2ADR[2]	AT2INTRQ	AT2IORDY	AT2DIOR	AT2DMACK	VDD3						GND	GND	GND	GND	GND	GND						VDD3	TCK	TDI	TDO	TMS	PLLON
15	AT2MODE	AT2CS[0]	AT2CS[1]	AT2ADR[0]	AT2ADR[1]	VDD						GND	GND	GND	GND	GND	GND						VDD	VIPWM	CSYNC	TESTMOD[0]	TESTMOD[1]	TESTMOD[2]
14	RESET	VDD	DBI	TRACE	VDD	GND						GND	GND	GND	GND	GND	GND						VDD	TESTMOD[6]	VDD	TESTMOD[5]	TESTMOD[4]	TESTMOD[3]
13	PCO	PLL3AVSS	PLL3AVDD	VMCLK	PLL1AVDD	VDD3						GND	GND	GND	GND	GND	GND						VDD3	HADRS[28]	HADRS[29]	HADRS[24]	HADRS[25]	HADRS[26]
12	PLL1AVSS	ADCCLKO	VDD	DVAMCLKO	DVAMCLKI	VDD						GND	GND	GND	GND	GND	GND						GND	HADRS[27]	HADRS[19]	HADRS[18]	HADRS[23]	HADRS[22]
11	DACCLKO	AMCLK1	AMCLK2	ARDATA[1]	ARDATA[0]	GND																	VDD	HADRS[15]	HADRS[16]	HADRS[17]	HADRS[20]	HADRS[21]
10	ARDATA[14]	ARDATA[15]	ARDATA[4]	ARDATA[3]	ARDATA[2]	VDD2																	VDD3	HDCS[1]	HDCS[0]	HCAS	HRAS	HCLKEN
9	ARDATA[11]	ARDATA[12]	ARDATA[13]	ARDATA[6]	ARDATA[5]	VDD																	GND	HDATA[7]	HDWE	DQMWS[0]	DQMWS[1]	HCLKO
8	ARDATA[10]	ARDATA[9]	ARWE	ARDQM[0]	ARDATA[7]	GND																	VDD	HDATA[6]	HDATA[5]	HDATA[4]	HDATA[8]	HDATA[9]
7	ARDATA[8]	ARDQM[1]	ARCS[0]	ARRAS	ARCAS	VDD3																	VDD3	HADRS[9]	HDATA[2]	HDATA[3]	HDATA11]	HDATA[10]
6	ARCLKO	ARADRS[12]	ARADRS[13]	ARADRS[14]	ARCS[1]	VDD	VDD3	GND	VDD	VDD3	VDD	GND	VDD3	VDD	GND	VDD3	VDD	GND	VDD3	VDD	GND	VDD3	VDD	HADRS[10]	HDATA[1]	HDATA[0]	HDATA[12]	HDATA[13]
5	ARADRS[11]	ARADRS[9]	ARADRS[1]	ARADRS[0]	ARADRS[10]	SPDIFI	ACMOD[0]	BCKO	DVDADT[4]	DVDAADR[0]	SCIDATA[0]	SPIDATAO	DDATA[11]	DDATA[8]	DCLKO	DADRS[9]	DADRS[8]	INT[7]	INT[1]	CTS[2]	RTS[0]	TX[3]	HWAIT	HCS[5]	HADRS[11]	HADRS[12]	HDATA[15]	HDATA[14]
4	ARADRS[8]	ARADRS[3]	ARADRS[2]	SRCBCKI	SRCDATAO	ACMOD[1]	LRCKO	DVDADT[3]	DVDAREQ	SCIDATA[1]	SPICS	DDATA[14]	DDATA[12]	DDATA[9]	DDQM[1]	DADRS[11]	DADRS[7]	DADRS[6]	INT[6]	INT[2]	CTS[1]	RX[3]	TX[2]	HDACK[0]	VDD	HCS[0]	HADRS[13]	HADRS[14]
3	ARADRS[7]	ARADRS[6]	SRCLRCKI	SRCLRCKO	DVBCK	ADATAI	DVDADT[5]	DVDADT[1]	DVDAACK	VDD	SPIDATAI	DDATA[15]	DDATA[13]	DDATA[10]	DWE	DCS	DADRS[10]	DADRS[5]	DADRS[4]	INT[3]	SCLK[0]	CTS[0]	RX[2]	TX[1]	HDREQ[0]	HCS[3]	HCS[2]	HADRS[30]
2	ARADRS[5]	ARADRS[4]	SRCBCKO	SPDIFO	BCKI	DVDADT[7]	DVDADT[6]	DVDADT[0]	SCICS[1]	SCICLK[1]	SPICLK	DDATA[2]	DDATA[3]	DDATA[6]	DDQM[0]	DRAS	DBS[1]	DADRS[1]	DADRS[2]	INT[4]	SCLK[1]	RTS[3]	RTS[2]	RX[1]	HDACK[1]	HOE	HCS[4]	HCS[1]
1	VDD	SRCDATAI	DVLRCK	DVADATA	LRCKI	ADATAO	DVDADT[2]	DVDAADR[1]	SCICS[0]	SCICLK[0]	DDATA[0]	DDATA[1]	DDATA[4]	DDATA[5]	DDATA[7]	DCAS	DBS[0]	DADRS[0]	DADRS[3]	INT[5]	INT[0]	CTS[3]	RTS[1]	RX[0]	TX[0]	HDREQ[1]	NC	NC

VDD	: 1.2V Power supply
VDD3	: 3.3V Power supply
GND	: Ground

● Pin Function

No.	BALL Address	Pin Name	I/O	Function
1	VDD3	VDD3	–	3.3V I/O power supply
2	GND	GND	–	Ground
3	VDD	VDD	–	1.2V LOGIC power supply
4	AH28	VDD	–	1.2V LOGIC power supply
5	AF26	ACCCTL	O	
6	AF27	PEDCTL	O	VIDEO-Analog, Output buffer
7	AG28	HKEYPLS	O	VIDEO-Analog, Output buffer
8	GND	GND	–	Ground
9	AE26	WM1DTI[7]	I/O	WM/VWM, Bidirectional buffer
10	AD25	WM1DTI[6]	I/O	WM/VWM, Bidirectional buffer
11	AC24	WM1DTI[5]	I/O	WM/VWM, Bidirectional buffer
12	AE27	WM1DTI[4]	I/O	WM/VWM, Bidirectional buffer
13	AF28	WM1DTI[3]	I/O	WM/VWM, Bidirectional buffer
14	AD26	WM1DTI[2]	I/O	WM/VWM, Bidirectional buffer
15	AE28	WM1DTI[1]	I/O	WM/VWM, Bidirectional buffer
16	AC25	WM1DTI[0]	I/O	WM/VWM, Bidirectional buffer
17	AB24	WM1DTO[7]	I/O	WM/VWM, Bidirectional buffer
18	VDD	VDD	–	1.2V LOGIC power supply
19	GND	GND	–	Ground
20	AD27	WM1DTO[6]	I/O	WM/VWM, Bidirectional buffer
21	AC26	WM1DTO[5]	I/O	WM/VWM, Bidirectional buffer
22	AD28	WM1DTO[4]	I/O	WM/VWM, Bidirectional buffer
23	AA24	WM1DTO[3]	I/O	WM/VWM, Bidirectional buffer
24	AB25	WM1DTO[2]	I/O	WM/VWM, Bidirectional buffer
25	VDD	VDD	–	1.2V LOGIC power supply
26	AC27	WM1DTO[1]	I/O	WM/VWM, Bidirectional buffer
27	GND	GND	–	Ground
28	AC28	WMCLKO	O	WM/VWM, Output buffer
29	VDD3	VDD3	–	3.3V I/O power supply
30	AB26	WM1DTO[0]	I/O	WM/VWM, Bidirectional buffer
31	AA25	WM2DTO[7]	O	WM/VWM, Output buffer
32	AB27	WM2DTO[6]	O	WM/VWM, Output buffer
33	AB28	VDD	–	1.2V LOGIC power supply
34	Y24	WM2DTO[5]	O	WM/VWM, Output buffer
35	AA27	WM2DTO[4]	O	WM/VWM, Output buffer
36	AA26	WM2DTO[3]	O	WM/VWM, Output buffer
37	AA28	WM2DTO[2]	O	WM/VWM, Output buffer
38	W24	WM2DTO[1]	O	WM/VWM, Output buffer
39	GND	GND	–	Ground
40	Y25	WM2DTO[0]	O	WM/VWM, Output buffer
41	GND	GND	–	Ground
42	Y26	SYNC	I/O	TS OUT, Bidirectional buffer
43	Y27	STREAM	I/O	TS OUT,Bidirectional buffer
44	Y28	PACKETEN	I/O	TS OUT,Bidirectional buffer
45	VDD3	VDD3	–	3.3V IO power supply
46	W25	TSRW	O	TS OUT,Output buffer
47	GND	GND	–	Ground
48	V24	TSCLK	O	TS OUT,Output buffer
49	VDD3	VDD3	–	3.3V I/O power supply
50	W26	NBC10	–	Bias current adjustment terminal
51	W27	VBGR10	I/O	Analog test bus (for debugging)
52	W28	AVDDAD10	–	ADC part analog power supply (3.3V)
53	V25	AVSSAD10	–	ADC part analog Ground
54	V27	CVBSIN	I	Analog Input
55	U24	VRTD10	–	Input common bias
56	V26	VRT10	–	TOP side reference voltage
57	V28	VRM10	–	Common voltage
58	U25	VRB10	–	Bottom side reference voltage
59	U26	VRBD10	I/O	Analog test bus (for debugging)
60	U27	DVSSAD10	–	ADC part digital ground
61	T24	DVDDAD10	–	ADC part digital power supply (3.3V)
62	GND	GND	–	Ground
63	VDD	VDD	–	1.2V LOGIC power supply
64	U28	AVDDAD8	–	
65	T25	AVSSAD8	–	
66	T26	CIN	I	VIDEO-Analog
67	T27	VRT8	–	VIDEO-Analog
68	T28	VRB8	–	VIDEO-Analog
69	R25	AVDDAD8	–	
70	R24	AVSSAD8	–	
71	R26	CRIN	I	VIDEO-Analog
72	R28	BG8	–	VIDEO-Analog
73	P28	AVDDAD8	–	
74	P27	AVSSAD8	–	
75	R27	GIN	I	VIDEO-Analog
76	P26	DVSSAD8	–	
77	P25	DVDDAD8	–	
78	GND	GND	–	Ground
79	P24	EDATA[15]	I/O	SDRAM ENC, Bidirectional buffer
80	VDD3	VDD3	–	3.3V I/O power supply
81	N28	EDATA[0]	I/O	SDRAM ENC, Bidirectional buffer
82	N27	EDATA[1]	I/O	SDRAM ENC, Bidirectional buffer
83	N26	EDATA[2]	I/O	SDRAM ENC, Bidirectional buffer
84	VDD	VDD	–	1.2V LOGIC power supply
85	N25	EDATA[13]	I/O	SDRAM ENC, Bidirectional buffer
86	GND	GND	–	Ground
87	M28	EDATA[3]	I/O	SDRAM ENC, Bidirectional buffer
88	GND	GND	–	Ground
89	N24	EDATA[14]	I/O	SDRAM ENC, Bidirectional buffer
90	M27	EDATA[4]	I/O	SDRAM ENC, Bidirectional buffer
91	M26	EDATA[5]	I/O	SDRAM ENC, Bidirectional buffer
92	VDD3	VDD3	–	3.3V I/O power supply
93	M25	EDATA[11]	I/O	SDRAM ENC, Bidirectional buffer
94	L28	EDATA[6]	I/O	SDRAM ENC, Bidirectional buffer
95	L27	EDATA[7]	I/O	SDRAM ENC, Bidirectional buffer
96	VDD	VDD	–	1.2V LOGIC power supply
97	M24	EDATA[12]	I/O	SDRAM ENC, Bidirectional buffer
98	GND	GND	–	Ground
99	L26	EDATA[8]	I/O	SDRAM ENC, Bidirectional buffer
100	GND	GND	–	Ground
101	L25	EDATA[9]	I/O	SDRAM ENC, Bidirectional buffer
102	K28	EDQM	O	SDRAM ENC, Output buffer
103	K27	EWE	O	SDRAM ENC, Output buffer
104	VDD3	VDD3	–	3.3V I/O power supply
105	K26	ECAS	O	SDRAM ENC, Output buffer
106	L24	EDATA[10]	I/O	SDRAM ENC, Bidirectional buffer
107	K25	ECLKEN	O	Output buffer, 4/6mA
108	VDD	VDD	–	1.2V LOGIC power supply
109	J28	ERAS	O	SDRAM ENC, Output buffer
110	GND	GND	–	Ground

No.	BALL Address	Pin Name	I/O	Function	No.	BALL Address	Pin Name	I/O	Function
111	J27	ECS	O	SDRAM ENC, Output buffer	166	VDD3	VDD3	–	3.3V I/O power supply
112	GND	GND	–	Ground	167	C25	AT1DATA[11]	I/O	ATAPI-DVD, Bidirectional buffer
113	J26	EADRS[11]	O	SDRAM ENC, Output buffer	168	D24	AT1DATA[10]	I/O	ATAPI-DVD, Bidirectional buffer
114	J25	EADRS[8]	O	SDRAM ENC, Output buffer	169	E23	AT1DATA[9]	I/O	ATAPI-DVD, Bidirectional buffer
115	GND	GND	–	Ground	170	GND	GND	–	Ground
116	K24	ECLKO	O	SDRAM ENC, Output buffer	171	A26	AT1DATA[8]	I/O	ATAPI-DVD, Bidirectional buffer
117	VDD3	VDD3	–	3.3V I/O power supply	172	A25	AT1DATA[7]	I/O	ATAPI-DVD, Bidirectional buffer
118	H28	EBS[0]	O	SDRAM ENC, Output buffer	173	B25	AT1DATA[6]	I/O	ATAPI-DVD, Bidirectional buffer
119	H27	EBS[1]	O	SDRAM ENC, Output buffer	174	GND	GND	–	Ground
120	H26	EADRS[10]	O	SDRAM ENC, Output buffer	175	C24	AT1DATA[5]	I/O	ATAPI-DVD, Bidirectional buffer
121	VDD	VDD	–	1.2V LOGIC power supply	176	VDD3	VDD3	–	3.3V I/O power supply
122	G28	EADRS[0]	O	SDRAM ENC, Output buffer	177	E22	AT1DATA[4]	I/O	ATAPI-DVD, Bidirectional buffer
123	GND	GND	–	Ground	178	VDD	VDD	–	1.2V LOGIC power supply
124	J24	EADRS[9]	O	SDRAM ENC, Output buffer	179	D23	AT1DATA[3]	I/O	ATAPI-DVD, Bidirectional buffer
125	GND	GND	–	Ground	180	A24	AT1DATA[2]	I/O	ATAPI-DVD, Bidirectional buffer
126	G27	EADRS[1]	O	SDRAM ENC, Output buffer	181	B24	AT1DATA[1]	I/O	ATAPI-DVD, Bidirectional buffer
127	H25	EADRS[6]	O	SDRAM ENC, Output buffer	182	GND	GND	–	Ground
128	G26	EADRS[2]	O	SDRAM ENC, Output buffer	183	C23	AT1DATA[0]	I/O	ATAPI-DVD, Bidirectional buffer
129	VDD3	VDD3	–	3.3V I/O power supply	184	D22	AT1RESET	O	Output buffer,8mA
130	F27	EDATA[17]	I/O	SDRAM ENC, Bidirectional buffer	185	E21	AT1DMARQ	I	ATAPI-DVD, Input buffer
131	F28	EDATA[16]	I/O	SDRAM ENC, Bidirectional buffer	186	GND	GND	–	Ground
132	H24	EADRS[7]	O	SDRAM ENC, Output buffer	187	B23	AT1DMACK	O	ATAPI-DVD, Output buffer
133	VDD	VDD	–	1.2V LOGIC power supply	188	VDD3	VDD3	–	3.3V I/O power supply
134	G25	EADRS[4]	O	SDRAM ENC, Output buffer	189	A23	AT1DIOW	O	ATAPI-DVD, Output buffer
135	GND	GND	–	Ground	190	VDD	VDD	–	1.2V LOGIC power supply
136	F26	EDATA[30]	I/O	SDRAM ENC, Bidirectional buffer	191	C22	AT1DIOR	O	ATAPI-DVD, Output buffer
137	GND	GND	–	Ground	192	D21	AT1IORDY	I	ATAPI-DVD, Input buffer
138	E27	EDATA[19]	I/O	SDRAM ENC, Bidirectional buffer	193	B22	AT1INTRQ	I	ATAPI-DVD, Input buffer
139	E28	EDATA[18]	I/O	SDRAM ENC, Bidirectional buffer	194	GND	GND	–	Ground
140	F25	EDATA[31]	I/O	SDRAM ENC, Bidirectional buffer	195	E20	AT1ADR[2]	O	ATAPI-DVD, Output buffer
141	VDD3	VDD3	–	3.3V I/O power supply	196	A22	AT1ADR[1]	O	ATAPI-DVD, Output buffer
142	E26	EDATA[29]	I/O	SDRAM ENC, Bidirectional buffer	197	C21	AT1ADR[0]	O	ATAPI-DVD, Output buffer
143	G24	EADRS[5]	O	SDRAM ENC, Output buffer	198	GND	GND	–	Ground
144	D28	EDATA[20]	I/O	SDRAM ENC, Bidirectional buffer	199	B21	AT1CS[1]	O	ATAPI-DVD, Output buffer
145	VDD	VDD	–	1.2V LOGIC power supply	200	VDD3	VDD3	–	3.3V I/O power supply
146	D27	EDATA[21]	I/O	SDRAM ENC, Bidirectional buffer	201	A21	AT1CS[0]	O	ATAPI-DVD, Output buffer
147	GND	GND	–	Ground	202	VDD	VDD	–	1.2V LOGIC power supply
148	C28	EDATA[22]	I/O	SDRAM ENC, Bidirectional buffer	203	E19	AT2DATA[15]	I/O	ATAPI-HDD, Bidirectional buffer
149	GND	GND	–	Ground	204	D20	AT2DATA[14]	I/O	ATAPI-HDD, Bidirectional buffer
150	F24	EADRS[3]	O	SDRAM ENC, Output buffer	205	C20	AT2DATA[13]	I/O	ATAPI-HDD, Bidirectional buffer
151	E25	EDATA[28]	I/O	SDRAM ENC, Bidirectional buffer	206	GND	GND	–	Ground
152	D26	EDATA[26]	I/O	SDRAM ENC, Bidirectional buffer	207	B20	AT2DATA[12]	I/O	ATAPI-HDD, Bidirectional buffer
153	VDD3	VDD3	–	3.3V I/O power supply	208	A20	AT2DATA[11]	I/O	ATAPI-HDD, Bidirectional buffer
154	B28	EDATA[23]	I/O	SDRAM ENC, Bidirectional buffer	209	D19	AT2DATA[10]	I/O	ATAPI-HDD, Bidirectional buffer
155	C27	EDATA[25]	I/O	SDRAM ENC, Bidirectional buffer	210	GND	GND	–	Ground
156	B27	EDATA24]	I/O	SDRAM ENC, Bidirectional buffer	211	E18	AT2DATA[9]	I/O	ATAPI-HDD, idirectional buffer
157	VDD	VDD	–	1.2V LOGIC power supply	212	VDD3	VDD3	–	3.3V I/O power supply
158	D25	EDATA[27]	I/O	SDRAM ENC, Bidirectional buffer	213	C19	AT2DATA[8]	I/O	ATAPI-HDD, Bidirectional buffer
159	GND	GND	–	Ground	214	VDD	VDD	–	1.2V LOGIC power supply
160	C26	AT1DATA[15]	I/O	ATAPI-DVD, Bidirectional buffer	215	B19	AT2DATA[7]	I/O	ATAPI-HDD, Bidirectional buffer
161	E24	AT1DATA[14]	I/O	ATAPI-DVD, Bidirectional buffer	216	A19	AT2DATA[6]	I/O	ATAPI-HDD, Bidirectional buffer
162	GND	GND	–	Ground	217	D18	AT2DATA[5]	I/O	ATAPI-HDD, Bidirectional buffer
163	A28	VDD	–	1.2V LOGIC power supply	218	GND	GND	–	Ground
164	B26	AT1DATA[13]	I/O	ATAPI-DVD, Bidirectional buffer	219	C18	AT2DATA[4]	I/O	ATAPI-HDD, Bidirectional buffer
165	A27	AT1DATA[12]	I/O	ATAPI-DVD, Bidirectional buffer	220	E17	AT2DATA[3]	I/O	ATAPI-HDD, Bidirectional buffer

No.	BALL Address	Pin Name	I/O	Function
221	B18	AT2DATA[2]	I/O	ATAPI-HDD, Bidirectional buffer
222	GND	GND	–	Ground
223	A18	AT2DATA[1]	I/O	ATAPI-HDD, Bidirectional buffer
224	VDD3	VDD3	–	3.3V I/O power supply
225	D17	AT2DATA[0]	I/O	ATAPI-HDD, Bidirectional buffer
226	VDD	VDD	–	1.2V LOGIC power supply
227	C17	AT2RESET	I/O	ATAPI-HDD, Bidirectional buffer
228	B17	AT2DMARQ	I	ATAPI-HDD, Input buffer
229	E16	AT2DMACK	O	ATAPI-HDD, Output buffer
230	GND	GND	–	Ground
231	A17	AT2DIOW	O	ATAPI-HDD, Output buffer
232	D16	AT2DIOR	O	ATAPI-HDD, Output buffer
233	C16	AT2IORDY	I	ATAPI-HDD, Input buffer
234	GND	GND	–	Ground
235	B16	AT2INTRQ	I	ATAPI-HDD, Input buffer
236	VDD3	VDD3	–	3.3V I/O power supply
237	A16	AT2ADR[2]	I/O	ATAPI-HDD, Bidirectional buffer
238	VDD	VDD	–	1.2V LOGIC power supply
239	E15	AT2ADR[1]	I/O	ATAPI-HDD, Bidirectional buffer
240	GND	GND	–	Ground
241	D15	AT2ADR[0]	I/O	ATAPI-HDD, Bidirectional buffer
242	VDD	VDD	–	1.2V LOGIC power supply
243	C15	AT2CS[1]	O	ATAPI-HDD, Output buffer
244	GND	GND	–	Ground
245	B15	AT2CS[0]	O	ATAPI-HDD, Output buffer
246	VDD	VDD	–	1.2V LOGIC power supply
247	A15	AT2MODE	I	ATAPI-HDD, Input buffer
248	GND	GND	–	Ground
249	GND	GND	–	Ground
250	A14	RESET	I	Input buffer (5V tolerant)
251	VDD3	VDD3	–	3.3V I/O power supply
252	B14	VDD	–	1.2V LOGIC power supply
253	C14	DBI	I	TEST, Input buffer
254	GND	GND	–	Ground
255	D14	TRACE	I	TEST, Input buffer
256	E14	VDD	–	1.2V LOGIC power supply
257	A13	PCO	O	CLOCK, 3 state output buffer
258	GND	GND	–	Ground
259	B13	PLL3AVSS	–	
260	C13	PLL3AVDD	–	
261	D13	VMCLK	I	CLOCK, Input buffer
262	E13	PLL1AVDD	–	
263	A12	PLL1AVSS	–	
264	VDD3	VDD3	–	3.3V I/O power supply
265	B12	ADCCLKO	O	CLOCK, Output buffer
266	GND	GND	–	Ground
267	C12	VDD	–	1.2V LOGIC power supply
268	VDD3	VDD3	–	3.3V I/O power supply
269	D12	DVAMCLKO	O	CLOCK, Output buffer
270	GND	GND	–	Ground
271	A11	DACCLKO	O	CLOCK, Output buffer
272	VDD3	VDD3	–	3.3V I/O power supply
273	E12	DVAMCLKI	I	AUDIO CLOCK, Input buffer
274	GND	GND	–	Ground
275	B11	AMCLK1	I	CLOCK, Input buffer
276	VDD3	VDD3	–	3.3V I/O power supply
277	C11	AMCLK2	I	CLOCK, Input buffer
278	GND	GND	–	Ground
279	D11	ARDATA[1]	I/O	SDRAM-ATAPI, Bidirectional buffer
280	VDD3	VDD3	–	3.3V I/O power supply
281	A10	ARDATA[14]	I/O	SDRAM-ATAPI, Bidirectional buffer
282	VDD	VDD	–	1.2V LOGIC power supply
283	B10	ARDATA[15]	I/O	SDRAM-ATAPI, Bidirectional buffer
284	E11	ARDATA[0]	I/O	SDRAM-ATAPI, Bidirectional buffer
285	C10	ARDATA[4]	I/O	SDRAM-ATAPI, Bidirectional buffer
286	GND	GND	–	Ground
287	D10	ARDATA[3]	I/O	SDRAM-ATAPI, Bidirectional buffer
288	A9	ARDATA[11]	I/O	SDRAM-ATAPI, Bidirectional buffer
289	B9	ARDATA[12]	I/O	SDRAM-ATAPI, Bidirectional buffer
290	GND	GND	–	Ground
291	C9	ARDATA[13]	I/O	SDRAM-ATAPI, Bidirectional buffer
292	E10	ARDATA[2]	I/O	SDRAM-ATAPI, Bidirectional buffer
293	D9	ARDATA[6]	I/O	SDRAM-ATAPI, Bidirectional buffer
294	VDD3	VDD3	–	3.3V I/O power supply
295	A8	ARDATA[10]	I/O	SDRAM-ATAPI, Bidirectional buffer
296	B8	ARDATA[9]	I/O	SDRAM-ATAPI, Bidirectional buffer
297	C8	ARWE	O	SDRAM-ATAPI, Output buffer
298	VDD	VDD	–	1.2V LOGIC power supply
299	A7	ARDATA[8]	I/O	SDRAM-ATAPI, Bidirectional buffer
300	E9	ARDATA[5]	I/O	SDRAM-ATAPI, Bidirectional buffer
301	D8	ARDQM[0]	O	SDRAM-ATAPI, Output buffer
302	GND	GND	–	Ground
303	B7	ARDQM[1]	O	SDRAM-ATAPI, Output buffer
304	C7	ARCS[0]	O	SDRAM-ATAPI, Output buffer
305	VDD3	VDD3	–	3.3V I/O power supply
306	A6	ARCLKO	O	SDRAM-ATAPI, Output buffer
307	GND	GND	–	Ground
308	B6	ARADRS[12]	O	SDRAM-ATAPI, Output buffer
309	E8	ARDATA[7]	I/O	SDRAM-ATAPI, Bidirectional buffer
310	D7	ARRAS	O	SDRAM-ATAPI, Output buffer
311	VDD3	VDD3	–	3.3V I/O power supply
312	A5	ARADRS[11]	O	SDRAM-ATAPI, Output buffer
313	C6	ARADRS[13]	O	SDRAM-ATAPI, Output buffer
314	B5	ARADRS[9]	O	SDRAM-ATAPI, Output buffer
315	VDD	VDD	–	1.2V LOGIC power supply
316	E7	ARCAS	O	SDRAM-ATAPI, Output buffer
317	D6	ARADRS[14]	O	SDRAM-ATAPI, Output buffer
318	C5	ARADRS[1]	O	SDRAM-ATAPI, Output buffer
319	GND	GND	–	Ground
320	B4	ARADRS[3]	O	SDRAM-ATAPI, Output buffer
321	A4	ARADRS[8]	O	SDRAM-ATAPI, Output buffer
322	A3	ARADRS[7]	O	SDRAM-ATAPI, Output buffer
323	GND	GND	–	Ground
324	E6	ARCS[1]	O	SDRAM-ATAPI, Output buffer
325	D5	ARADRS[0]	O	SDRAM-ATAPI, Output buffer
326	C4	ARADRS[2]	O	SDRAM-ATAPI, Output buffer
327	VDD3	VDD3	–	3.3V I/O power supply
328	A2	ARADRS[5]	O	SDRAM-ATAPI, Output buffer
329	B3	ARADRS[6]	O	SDRAM-ATAPI, Output buffer
330	B2	ARADRS[4]	O	SDRAM-ATAPI, Output buffer

No.	BALL Address	Pin Name	I/O	Function	No.	BALL Address	Pin Name	I/O	Function
331	GND	GND	–	Ground	386	VDD	VDD	–	1.2V LOGIC power supply
332	E5	ARADRS[10]	O	SDRAM-ATAPI, Output buffer	387	GND	GND	–	Ground
333	D4	SRCBCKI	I	AUDIO, Input buffer	388	L3	SPIDATAI	I/O	HOST, Bidirectional buffer
334	VDD3	VDD3	–	3.3V I/O power supply	389	VDD	VDD	–	1.2V LOGIC power supply
335	C3	SRCLRCKI	I	AUDIO, Input buffer	390	M5	SPIDATAO	I/O	HOST, Bidirectional buffer
336	B1	SRCDATAI	I	AUDIO, Input buffer	391	GND	GND	–	Ground
337	A1	VDD	–	1.2V LOGIC power supply	392	L2	SPICLK	I/O	HOST, Bidirectional buffer
338	GND	GND	–	Ground	393	GND	GND	–	Ground
339	C2	SRCBCKO	O	AUDIO, Output buffer	394	L1	DDATA[0]	I/O	SDRAM-DEC, Bidirectional buffer
340	VDD	VDD	–	1.2V LOGIC power supply	395	VDD3	VDD3	–	3.3V I/O power supply
341	D3	SRCLRCKO	O	AUDIO, Output buffer	396	M4	DDATA[14]	I/O	SDRAM-DEC, Bidirectional buffer
342	E4	SRCDATAO	O	AUDIO, Output buffer	397	M3	DDATA[15]	I/O	SDRAM-DEC, Bidirectional buffer
343	F5	SPDIFI	I	AUDIO, Input buffer	398	M2	DDATA[2]	I/O	SDRAM-DEC, Bidirectional buffer
344	D2	SPDIFO	O	AUDIO, Output buffer	399	VDD	VDD	–	1.2V LOGIC power supply
345	C1	DVLRCK	I/O	AUDIO, Bidirectional buffer	400	N5	DDATA[11]	I/O	SDRAM-DEC, Bidirectional buffer
346	E3	DVBCK	I/O	AUDIO, Bidirectional buffer	401	GND	GND	–	Ground
347	D1	DVADATA	I/O	AUDIO, Bidirectional buffer	402	M1	DDATA[1]	I/O	SDRAM-DEC, Bidirectional buffer
348	F4	ACMOD[1]	I	AUDIO, Input buffer	403	GND	GND	–	Ground
349	G5	ACMOD[0]	I	AUDIO, Input buffer	404	N4	DDATA[12]	I/O	SDRAM-DEC, Bidirectional buffer
350	E1	LRCKI	I	AUDIO, Input buffer	405	N3	DDATA[13]	I/O	SDRAM-DEC, Bidirectional buffer
351	E2	BCKI	I	AUDIO, Input buffer	406	N2	DDATA[3]	I/O	SDRAM-DEC, Bidirectional buffer
352	GND	GND	–	Ground	407	VDD3	VDD3	–	3.3V I/O power supply
353	F3	ADATAI	I	AUDIO, Input buffer	408	N1	DDATA[4]	I/O	SDRAM-DEC, Bidirectional buffer
354	GND	GND	–	Ground	409	P5	DDATA[8]	I/O	SDRAM-DEC, Bidirectional buffer
355	G4	LRCKO	O	AUDIO, Output buffer	410	P4	DDATA[9]	I/O	SDRAM-DEC, Bidirectional buffer
356	VDD	VDD	–	1.2V LOGIC power supply	411	VDD	VDD	–	1.2V LOGIC power supply
357	H5	BCKO	O	AUDIO, Output buffer	412	P3	DDATA[10]	I/O	SDRAM-DEC, Bidirectional buffer
358	F1	ADATAO	O	DVD-AUDIO, Output buffer	413	GND	GND	–	Ground
359	F2	DVDADT[7]	O	DVD-AUDIO, Output buffer	414	P2	DDATA[6]	I/O	SDRAM-DEC, Bidirectional buffer
360	G2	DVDADT[6]	O	DVD-AUDIO, Output buffer	415	GND	GND	–	Ground
361	G3	DVDADT[5]	O	DVD-AUDIO, Output buffer	416	P1	DDATA[5]	I/O	SDRAM-DEC, Bidirectional buffer
362	J5	DVDADT[4]	O	DVD-AUDIO, Output buffer	417	R1	DDATA[7]	I/O	SDRAM-DEC, Bidirectional buffer
363	H4	DVDADT[3]	O	DVD-AUDIO, Output buffer	418	R2	DDQM[0]	O	SDRAM-DEC, Output buffer
364	G1	DVDADT[2]	O	DVD-AUDIO, Output buffer	419	VDD3	VDD3	–	3.3V I/O power supply
365	H3	DVDADT[1]	O	DVD-AUDIO, Output buffer	420	R3	DWE	O	SDRAM-DEC, Output buffer
366	H2	DVDADT[0]	O	DVD-AUDIO, Output buffer	421	VDD	VDD	–	1.2V LOGIC power supply
367	H1	DVDAADR[1]	O	DVD-AUDIO, Output buffer	422	R4	DDQM[1]	O	SDRAM-DEC, Output buffer
368	K5	DVDAADR[0]	O	DVD-AUDIO, Output buffer	423	GND	GND	–	Ground
369	J4	DVDAREQ	I/O	DVD-AUDIO, Bidirectional buffer	424	R5	DCLKO	O	SDRAM-DEC, Output buffer
370	GND	GND	–	Ground	425	VDD3	VDD3	–	3.3V I/O power supply
371	J3	DVDAACK	O	DVD-AUDIO, Output buffer	426	VDD	VDD	–	1.2V LOGIC power supply
372	VDD	VDD	–	1.2V LOGIC power supply	427	T1	DCAS	O	SDRAM-DEC, Output buffer
373	J2	SCICS[1]	I/O	HOST, Bidirectional buffer	428	GND	GND	–	Ground
374	VDD3	VDD3	–	3.3V I/O power supply	429	T2	DRAS	–	SDRAM-DEC, Output buffer
375	J1	SCICS[0]	I/O	HOST, Bidirectional buffer	430	GND	GND	–	Ground
376	VDD	VDD	–	1.2V LOGIC power supply	431	T3	DCS	O	SDRAM-DEC, Output buffer
377	K4	SCIDATA[1]	I/O	HOST, Bidirectional buffer	432	T4	DADRS[11]	O	SDRAM-DEC, Output buffer
378	GND	GND	–	Ground	433	U1	DBS[0]	O	SDRAM-DEC, Output buffer
379	L5	SCIDATA[0]	I/O	HOST, Bidirectional buffer	434	VDD3	VDD3	–	3.3V I/O power supply
380	K3	VDD	–	1.2V LOGIC power supply	435	T5	DADRS[9]	O	SDRAM-DEC, Output buffer
381	K2	SCICLK[1]	I/O	HOST, Bidirectional buffer	436	U2	DBS[1]	O	SDRAM-DEC, Output buffer
382	GND	GND	–	Ground	437	U3	DADRS[10]	O	SDRAM-DEC, Output buffer
383	K1	SCICLK[0]	I/O	HOST, Bidirectional buffer	438	VDD	VDD	–	1.2V LOGIC power supply
384	GND	GND	–	Ground	439	U4	DADRS[7]	O	SDRAM-DEC, Output buffer
385	L4	SPICS	I/O	HOST, Bidirectional buffer	440	GND	GND	–	Ground

No.	BALL Address	Pin Name	I/O	Function
441	V1	DADRS[0]	O	SDRAM-DEC, Output buffer
442	GND	GND	–	Ground
443	V2	DADRS[1]	O	SDRAM-DEC, Output buffer
444	VDD	VDD	–	1.2V LOGIC power supply
445	U5	DADRS[8]	O	SDRAM-DEC, Output buffer
446	GND	GND	–	Ground
447	V3	DADRS[5]	O	SDRAM-DEC, Output buffer
448	VDD3	VDD3	–	3.3V I/O power supply
449	V4	DADRS[6]	O	SDRAM-DEC, Output buffer
450	W1	DADRS[3]	O	SDRAM-DEC, Output buffer
451	W2	DADRS[2]	O	SDRAM-DEC, Output buffer
452	VDD	VDD	–	1.2V LOGIC power supply
453	W3	DADRS[4]	O	SDRAM-DEC, Output buffer
454	GND	GND	–	Ground
455	GND	GND	–	Ground
456	GND	GND	–	Ground
457	V5	INT[7]	I/O	HOST, Bidirectional buffer
458	VDD	VDD	–	1.2V LOGIC power supply
459	W4	INT[6]	I/O	HOST, Bidirectional buffer
460	Y1	INT[5]	I/O	HOST, Bidirectional buffer
461	Y2	INT[4]	I/O	HOST, Bidirectional buffer
462	VDD3	VDD3	–	3.3V I/O power supply
463	Y3	INT[3]	I/O	HOST, Bidirectional buffer
464	GND	GND	–	Ground
465	Y4	INT[2]	I/O	HOST, Bidirectional buffer
466	VDD	VDD	–	1.2V LOGIC power supply
467	W5	INT[1]	I/O	HOST, Bidirectional buffer
468	AA1	INT[0]	I/O	HOST, Bidirectional buffer
469	AA2	SCLK[1]	I/O	HOST, Bidirectional buffer
470	AA3	SCLK[0]	I/O	HOST, Bidirectional buffer
471	AB1	CTS[3]	I/O	HOST, Bidirectional buffer
472	GND	GND	–	Ground
473	Y5	CTS[2]	I/O	HOST, Bidirectional buffer
474	GND	GND	–	Ground
475	AA4	CTS[1]	I/O	HOST, Bidirectional buffer
476	VDD	VDD	–	1.2V LOGIC power supply
477	AB3	CTS[0]	I/O	HOST, Bidirectional buffer
478	AB2	RTS[3]	I/O	HOST, Bidirectional buffer
479	AC2	RTS[2]	I/O	HOST, Bidirectional buffer
480	AC1	RTS[1]	I/O	HOST, Bidirectional buffer
481	AA5	RTS[0]	I/O	HOST, Bidirectional buffer
482	VDD3	VDD3	–	3.3V I/O power supply
483	AB4	RX[3]	I/O	HOST, Bidirectional buffer
484	GND	GND	–	Ground
485	AC3	RX[2]	I/O	HOST, Bidirectional buffer
486	VDD	VDD	–	1.2V LOGIC power supply
487	AD2	RX[1]	I/O	HOST, Bidirectional buffer
488	AD1	RX[0]	I/O	HOST, Bidirectional buffer
489	AB5	TX[3]	I/O	HOST, Bidirectional buffer
490	AC4	TX[2]	I/O	HOST, Bidirectional buffer
491	AD3	TX[1]	I/O	HOST, Bidirectional buffer
492	GND	GND	–	Ground
493	AE1	TX[0]	I/O	HOST, Bidirectional buffer
494	GND	GND	–	Ground
495	AE2	HDACK[1]	O	HOST, Output buffer
496	VDD	VDD	–	1.2V LOGIC power supply
497	AD4	HDACK[0]	O	Output buffer, 4mA
498	AF1	HDREQ[1]	I	HOST, Input buffer
499	AE3	HDREQ[0]	I	HOST, Input buffer
500	AC5	HWAIT	I	HOST, Input buffer
501	AF2	HOE	O	HOST, Output buffer
502	VDD3	VDD3	–	3.3V I/O power supply
503	GND	GND	–	Ground
504	AE4	VDD	–	1.2V LOGIC power supply
505	AD5	HCS[5]	O	HOST, Output buffer
506	AG2	HCS[4]	O	HOST, Output buffer
507	AF3	HCS[3]	O	HOST, Output buffer
508	AG3	HCS[2]	O	HOST, Output buffer
509	AH2	HCS[1]	O	HOST, Output buffer
510	GND	GND	–	Ground
511	AF4	HCS[0]	O	HOST, Output buffer
512	VDD	VDD	–	1.2V LOGIC power supply
513	AD6	HADRS[10]	I/O	HOST, Bidirectional buffer
514	GND	GND	–	Ground
515	AE5	HADRS[11]	I/O	HOST, Bidirectional buffer
516	AG4	HADRS[13]	I/O	HOST, Bidirectional buffer
517	AH3	HADRS[30]	I/O	HOST, Bidirectional buffer
518	VDD3	VDD3	–	3.3V I/O power supply
519	AF5	HADRS[12]	I/O	HOST, Bidirectional buffer
520	GND	GND	–	Ground
521	AH4	HADRS[14]	I/O	HOST, Bidirectional buffer
522	AE6	HDATA[1]	I/O	HOST, Bidirectional buffer
523	AD7	HADRS[9]	I/O	HOST, Bidirectional buffer
524	VDD3	VDD3	–	3.3V I/O power supply
525	AG5	HDATA[15]	I/O	HOST, Bidirectional buffer
526	GND	GND	–	Ground
527	AH5	HDATA[14]	I/O	HOST, Bidirectional buffer
528	GND	GND	–	Ground
529	AF6	HDATA[0]	I/O	HOST, Bidirectional buffer
530	AD8	HDATA[6]	I/O	HOST, Bidirectional buffer
531	AE7	HDATA[2]	I/O	HOST, Bidirectional buffer
532	VDD3	VDD3	–	3.3V I/O power supply
533	AG6	HDATA[12]	I/O	HOST, Bidirectional buffer
534	VDD	VDD	–	1.2V LOGIC power supply
535	AH6	HDATA[13]	I/O	HOST, Bidirectional buffer
536	AG7	HDATA[11]	I/O	HOST, Bidirectional buffer
537	AF7	HDATA[3]	I/O	HOST, Bidirectional buffer
538	GND	GND	–	Ground
539	AE8	HDATA[5]	I/O	HOST, Bidirectional buffer
540	GND	GND	–	Ground
541	AD9	HDATA[7]	I/O	HOST, Bidirectional buffer
542	AF8	HDATA[4]	I/O	HOST, Bidirectional buffer
543	AH7	HDATA[10]	I/O	HOST, Bidirectional buffer
544	VDD3	VDD3	–	3.3V I/O power supply
545	AG8	HDATA[8]	I/O	HOST, Bidirectional buffer
546	VDD	VDD	–	1.2V LOGIC power supply
547	AH8	HDATA[9]	I/O	HOST, Bidirectional buffer
548	AE9	HDWE	O	HOST, Output buffer
549	AF9	DQMWS[0]	O	HOST, Output buffer
550	GND	GND	–	Ground

No.	BALL Address	Pin Name	I/O	Function	No.	BALL Address	Pin Name	I/O	Function
551	AD10	HDCS[1]	O	HOST, Output buffer	606	AG16	TMS	I	TEST, nput buffer
552	GND	GND	–	Ground	607	GND	GND	–	Ground
553	AG9	DQMWS[1]	O	HOST, Output buffer	608	AF16	TDO	O	TEST, Output buffer
554	VDD3	VDD3	–	3.3V I/O power supply	609	VDD	VDD	–	1.2V LOGIC power supply
555	AH9	HCLKO	O	HOST, Output buffer	610	AE16	TDI	I	TEST, Input buffer
556	GND	GND	–	Ground	611	VDD3	VDD3	–	3.3V I/O power supply
557	AE10	HDCS[0]	O	HOST, Output buffer	612	AH17	TRST	I	TEST, Input buffer
558	VDD3	VDD3	–	3.3V I/O power supply	613	GND	GND	–	Ground
559	AD11	HADRS[15]	I/O	HOST, Bidirectional buffer	614	AD16	TCK	I	TEST, Input buffer
560	VDD	VDD	–	1.2V LOGIC power supply	615	VDD3	VDD3	–	3.3V I/O power supply
561	AF10	HCAS	O	HOST, Output buffer	616	AG17	PLLRST	I	CLOCK, Input buffer
562	AG10	HRAS	O	HOST, Output buffer	617	GND	GND	–	Ground
563	AH10	HCLKEN	O	HOST, Output buffer	618	AF17	DVVCLKO	O	CLOCK, Output buffer
564	GND	GND	–	Groud	619	VDD3	VDD3	–	3.3V I/O power supply
565	AE11	HADRS[16]	I/O	HOST, Bidirectional buffer	620	AE17	PXCLK	O	CLOCK, Output buffer
566	GND	GND	–	Ground	621	GND	GND	–	Ground
567	AF11	HADRS[17]	I/O	HOST, Bidirectional buffer	622	AH18	REC656I[7]	I	VIDEO-Digital, Input buffer
568	AD12	HADRS[27]	I/O	HOST, Bidirectional buffer	623	VDD	VDD	–	1.2V LOGIC power supply
569	AG11	HADRS[20]	I/O	HOST, Bidirectional buffer	624	AG18	REC656I[6]	I	VIDEO-Digital, Input buffer
570	VDD3	VDD3	–	3.3V I/O power supply	625	GND	GND	–	Ground
571	AH11	HADRS[21]	I/O	HOST, Bidirectional buffer	626	AD17	REC656I[5]	I	VIDEO-Digital, Input buffer
572	VDD	VDD	–	1.2V LOGIC power supply	627	AF18	REC656I[4]	I	VIDEO-Digital, Input buffer
573	AE12	HADRS[19]	I/O	HOST, Bidirectional buffer	628	AE18	REC656I[3]	I	VIDEO-Digital, Input buffer
574	AF12	HADRS[18]	I/O	HOST, Bidirectional buffer	629	AH19	REC656I[2]	I	VIDEO-Digital, Input buffer
575	AG12	HADRS[23]	I/O	HOST, Bidirectional buffer	630	AG19	REC656I[1]	I	VIDEO-Digital, Input buffer
576	GND	GND	–	Ground	631	AF19	REC656I[0]	I	VIDEO-Digital, Input buffer
577	AD13	HADRS[28]	I/O	HOST, Bidirectional buffer	632	AH20	DVVIDEO[7]	I/O	VIDEO-Digital, Bidirectional buffer
578	VDD	VDD	–	1.2V LOGIC power supply	633	AD18	DVVIDEO[6]	I/O	VIDEO-Digital, Bidirectional buffer
579	AH12	HADRS[22]	I/O	HOST, Bidirectional buffer	634	AE19	DVVIDEO[5]	I/O	VIDEO-Digital, Bidirectional buffer
580	GND	GND	–	Ground	635	VDD3	VDD3	–	3.3V I/O power supply
581	AE13	HADRS[29]	I/O	HOST, Bidirectional buffer	636	AG20	DVVCLKI	I	CLOCK, Input buffer
582	VDD	VDD	–	1.2V LOGIC power supply	637	AF20	PLL2AVDD	–	
583	AF13	HADRS[24]	I/O	HOST, Bidirectional buffer	638	AH21	PLL2AVSS	–	
584	VDD3	VDD3	–	3.3V I/O power supply	639	AD19	R656CLKI	I	CLOCK, Input buffer
585	AG13	HADRS[25]	I/O	HOST, Bidirectional buffer	640	GND	GND	–	Ground
586	GND	GND	–	Ground	641	AE20	ADMCLKI	I	CLOCKI, Input buffer
587	AH13	HADRS[26]	I/O	HOST, Bidirectional buffer	642	VDD3	VDD3	–	3.3V I/O power supply
588	GND	GND	–	Ground	643	AG21	DVVIDEO[4]	I/O	VIDEO-Digital, Bidirectional buffer
589	GND	GND	–	Ground	644	AF21	DVVIDEO[3]	I/O	VIDEO-Digital, Bidirectional buffer
590	AD14	TESTMOD[6]	I	TEST, Input buffer	645	AD20	DVVIDEO[2]	I/O	VIDEO-Digital, Bidirectional buffer
591	AE14	VDD	–	1.2V LOGIC power supply	646	AH22	DVVIDEO[1]	I/O	VIDEO-Digital, Bidirectional buffer
592	AF14	TESTMOD[5]	I	TEST, Input buffer	647	AG22	DVVIDEO[0]	I/O	VIDEO-Digital, Bidirectional buffer
593	GND	GND	–	Ground	648	AE21	REC656O[7]	O	VIDEO-Digital, Output buffer
594	AG14	TESTMOD[4]	I	TEST, Input buffer	649	AF22	REC656O[6]	O	VIDEO-Digital, Output buffer
595	VDD	VDD	–	1.2V LOGIC power supply	650	VDD	VDD	–	1.2V LOGIC power supply
596	AH14	TESTMOD[3]	I	TEST, Input buffer	651	AH23	DVREQ	I	VIDEO-Digital, Input buffer
597	GND	GND	–	Ground	652	GND	GND	–	Ground
598	AH15	TESTMOD[2]	I	TEST, Input buffer	653	AG23	DVACK	O	VIDEO-Digital, Output buffer
599	VDD	VDD	–	1.2V LOGIC power supply	654	GND	GND	–	Ground
600	AG15	TESTMOD[1]	I	TEST, Input buffer	655	AE22	AVSS1DA10	–	
601	GND	GND	–	Ground	656	AD21	GOUT	O	VIDEO-Analog
602	AF15	TESTMOD[0]	I	TEST, Input buffer	657	AH24	AVDD1DA10	–	
603	AE15	CSYNC	I	CLOCK, Input buffer	658	AF23	BOUT	O	VIDEO-Analog
604	AD15	VIPWM	O	CLOCK, Output buffer	659	AE23	AVDD1DA10	–	
605	AH16	PLLON	I	TEST, Input buffer	660	AG24	ROUT	O	VIDEO-Analog

No.	BALL Address	Pin Name	I/O	Function
661	AD22	IREF[0]	–	VIDEO-Analog
662	AF24	IREF[1]	–	VIDEO-Analog
663	AG25	YOUT	O	VIDEO-Analog
664	AH25	AVSS2DA10	–	
665	AE24	COUT	O	VIDEO-Analog
666	AH26	AVDD2DA10	–	
667	GND	GND	–	Ground
668	AF25	REC656O[5]	O	VIDEO-Digital, Output buffer
669	AD23	REC656O[4]	O	VIDEO-Digital, Output buffer
670	AH27	REC656O[3]	O	VIDEO-Digital, Output buffer
671	AG26	REC656O[2]	O	VIDEO-Digital, Output buffer
672	AG27	REC656O[1]	O	VIDEO-Digital, Output buffer
673	GND	GND	–	Ground
674	AD24	REC656O[0]	O	VIDEO-Digital, Output buffer
675	AE25	AGCCTL	O	VIDEO-Analog

● Others

BALL Address	Pin Name	BALL Address	Pin Name	BALL Address	Pin Name	BALL Address	Pin Name
AA23	GND	P12	GND	AC11	VDD	AB23	VDD3
AA6	GND	P13	GND	AC14	VDD	AB6	VDD3
AC12	GND	P14	GND	AC6	VDD	AC10	VDD3
AC17	GND	P15	GND	AC8	VDD	AC13	VDD3
AC20	GND	P16	GND	L6	VDD	AC16	VDD3
AC9	GND	P17	GND	AC11	VDD	AC19	VDD3
F11	GND	R12	GND	AC14	VDD	AC22	VDD3
F14	GND	R13	GND	AC6	VDD	AC7	VDD3
F17	GND	R14	GND	AC8	VDD	F10	VDD3
F20	GND	R15	GND	L6	VDD	F13	VDD3
F23	GND	R16	GND	P6	VDD	F16	VDD3
F8	GND	R17	GND	U6	VDD	F19	VDD3
H6	GND	R23	GND	Y6	VDD	F22	VDD3
J23	GND	R6	GND	F12	VDD	F7	VDD3
M12	GND	T12	GND	F6	VDD	G23	VDD3
M13	GND	T13	GND	F9	VDD	G6	VDD3
M14	GND	T14	GND	J6	VDD	K23	VDD3
M15	GND	T15	GND	AC15	VDD	K6	VDD3
M16	GND	T16	GND	AC18	VDD	N23	VDD3
M17	GND	T17	GND	AC21	VDD	N6	VDD3
M23	GND	U12	GND	AC23	VDD	T23	VDD3
M6	GND	U13	GND	F15	VDD	T6	VDD3
N12	GND	U14	GND	F18	VDD	W23	VDD3
N13	GND	U15	GND	F21	VDD	W6	VDD3
N14	GND	U16	GND	H23	VDD		
N15	GND	U17	GND	L23	VDD		
N16	GND	V23	GND	P23	VDD		
N17	GND	V6	GND	U23	VDD		
				Y23	VDD		

7.3 OUTLINE OF THE PRODUCT

■ Main newly developed technologies

1. Pickup

The pickup supports quadruple-speed recording for the DVD-R/RW.
A liquid-crystal tilt servo system is adopted for the pickup.

2. Recording-signal-processing LSI

- UPD3330GC (DRIVE Assy: IC101)

The recording-signal-processing module of conventional models consists of two chips, but this has been integrated into a single newly developed recording-signal-processing LSI, enabling stable performance and cost reduction.

3. AV-signal-processing LSI

- M65673WG (MAIN Assy: IC1001)

The AV-signal-processing module of conventional models consists of eleven chips, but this has been integrated into a single newly developed AV-signal-processing LSI, enabling large-scale cost reduction while maintaining the conventional functions. In the new LSI, all the basic functions necessary for a DVD recorder have been integrated. Like conventional models, this model is designed to support multitasking. The main functions are as follows:

- 3-D Y/C separation
- Video decoding
- Frame TBC
- MPEG video encoding
- Dolby Digital Consumer Encoding
- ATA/ATAPI I/F (2 ch)
- Main CPU (32-bit RISC, 54 MHz)
- Graphics engine (OSD, scaling, mixing)
- MPEG video decoding
- Audio decoding (AC-3, MPEG)
- Video encoding
- Progressive conversion
- Audio I/F
- 3-D DNR for playback

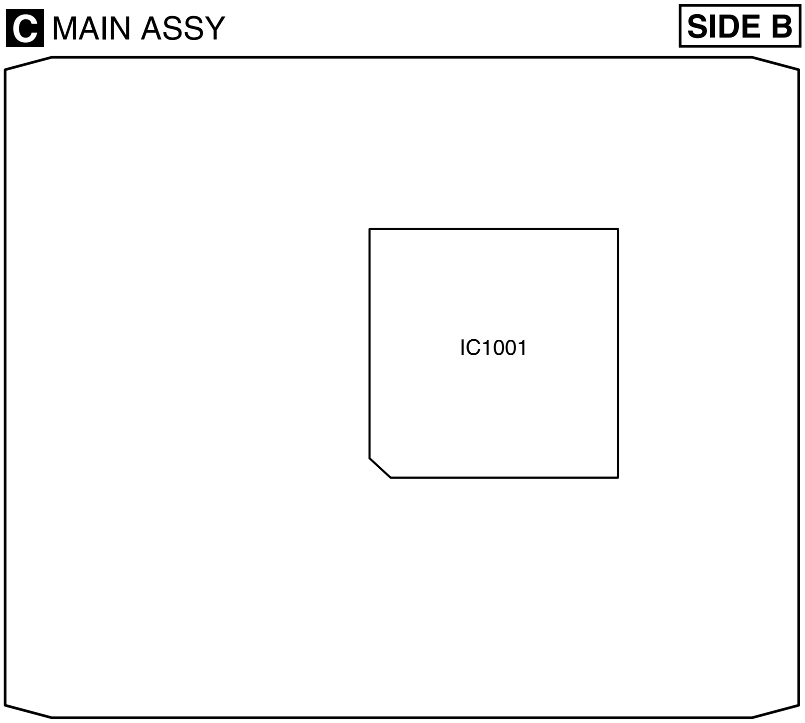


Fig.1 MAIN Assy

System configuration

In each signal-processing LSI of the main function blocks, various processes have been integrated into one chip, which enables simpler system configuration. With the AV-signal-processing LSI at the center, video inputs/outputs, audio inputs/outputs, writer and various memory cells are connected to it.

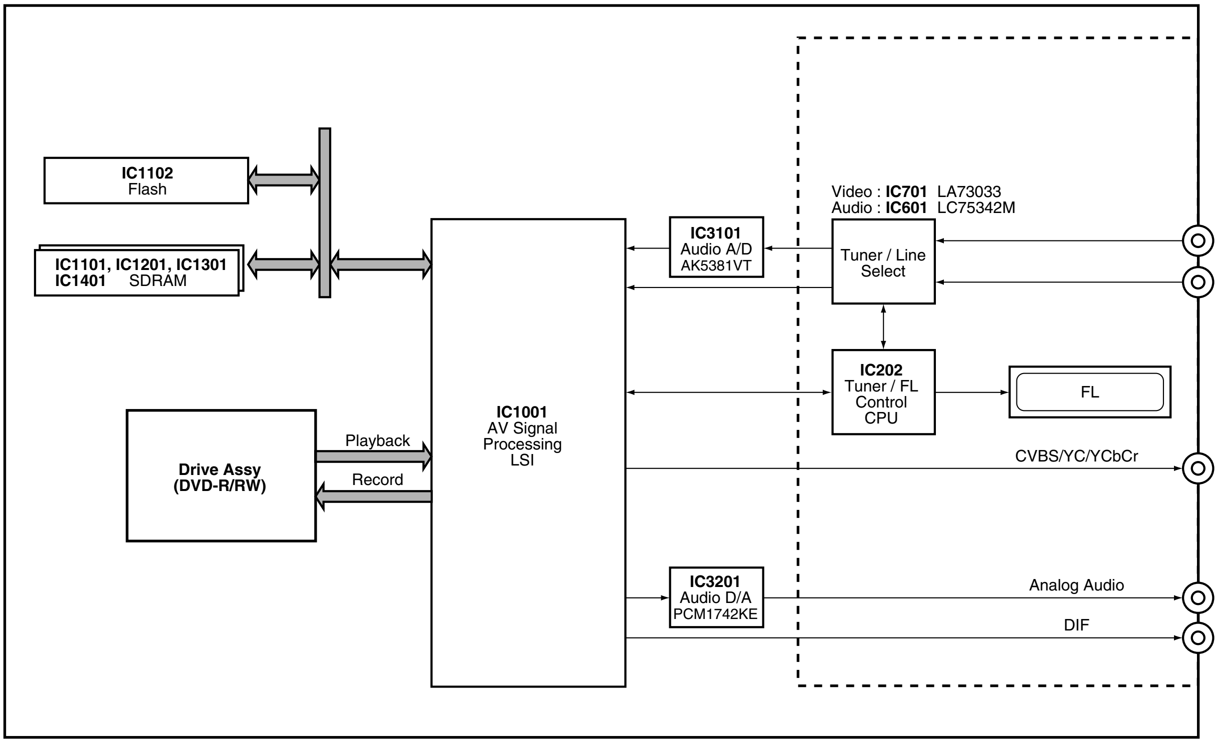

IC1102
Flash
IC1101, IC1201, IC1301
IC1401 SDRAM
Drive Assy
(DVD-R/RW)
Playback
Record
IC1001
AV Signal
Processing
LSI
IC3101
Audio A/D
AK5381VT
IC3201
Audio D/A
PCM1742KE
Video : IC701 LA73033
Audio : IC601 LC75342M
Tuner / Line
Select
IC202
Tuner / FL
Control
CPU
FL
CVBS/YC/YCbCr
Analog Audio
DIF

Fig2. System configuration

[Memorized Data]

- EEPROM (IC204 JCKB ASSY)
  The information about Tuner is backed up.
  (Pre-set CH, AFT ON/OFF, Skip CH, etc)
  Information about timed recording
  Other information
  (The state of Volume, remote control mode and
  last positions (Line/Tuner, etc)

- CPU SDRAM (IC1101 MAIN ASSY)
  The execution area and working area of a program

- FLASH ROM (IC1102 MAIN ASSY)
  The storing area of a program code and setting information

- DEC SDRAM (IC1201 MAIN ASSY)
  The working area of MPEG playback and OSD/Thumbnail
  (OSD is mainly for Disc Menu creation in Video mode)

- ENC SDRAM (IC1301 MAIN ASSY)
  The working area of MPEG recording and analog input and output (AVIO)

- ATA SDRAM (IC1401 MAIN ASSY)
  The working area of ATA/OSD2/Audio TBC (OSD2 is for all GUI.)

New functions and specifications

In this model, the following new functions and specifications have been included in addition to those of conventional models:

1. Improved multitasking functions

This model supports DVD multitasking (only in VR mode), which was impossible with conventional models.

ⓐ Pursuit playback

Playback of the title being recorded by the DVD drive in VR mode .

ⓑ Simultaneous recording/playback

Playback of a title other than that being recorded by the DVD drive in VR mode.

2. Advanced disc NAVI

In the conventional disc NAVI function, recorded titles are displayed with still pictures as a list. In the advanced disc NAVI function, the title selected with the cursor is displayed as an animated picture with sound.

3. Improved Still Picture menu in Video mode

The disc NAVI function, which enables displaying a list of recorded titles with still pictures, is enabled in Video mode with this model. Selection from among nine title menus is also supported.

4. Adoption of MPEG2 SIF

In MN1-6 modes, MPEG2 SIF has been adopted, instead of the MPEG1 SIF of conventional models. This enables higher-quality recording for longer hours.

5. Improved editing functions

For DVD, the original/play-list editing in DVD-VR mode available with conventional models is provided.
The automatic-chapter-mark-insertion function in response to a change in audio type (stereo, monaural, bilingual) makes commercial-cutting editing easier.

5. Various-format playback

Playback of WMA, MP3, and JPEG formats is supported.

6. Other functions and specifications

The following main functions and specifications adopted with conventional models are also provided with this model:

- 192-kHz, 24-bit DAC
- 48-kHz, 20-bit ADC
- Digital 3-D Y/C separation circuit
- Digital frame TBC
- 3-D DNR
- DV (iLink) input/output
- Built-in BS tuner
- Playback with commercials skipped
- CD/video-CD playback
- Picture creation
- Recording with 3/4-D1 and 2/3-D1 resolutions
- Recording mode with 32-step MNs
- LPCM recording
- High-resolution GUI
- Progressive output
- SRS TruSurround

7.4 DISC/CONTENT FORMAT

Disc / content format playback compatibility

General disc compatibility

This recorder is compatible with a wide range of disc types (media) and formats. Playable discs will generally feature one of the following logos on the disc and/or disc packaging. Note however that some disc types, such as recordable CD and DVD, may be in an unplayable format—see below for further compatibility information.

DVD-Video DVD-R DVD-RW

Audio CD Video CD CD-R CD-RW

Fujicolor CD

- Also compatible with KODAK Picture CD
- *is a trademark of Fuji Photo Film Co. Ltd.*

DVD-R/RW compatibility

This recorder will play and record DVD-R/RW discs.

Compatible media:

- DVD-RW Ver. 1.1, Ver. 1.1 / 2x and Ver. 1.2
- DVD-R Ver. 2.0 and Ver. 2.0 / 4x / 8x

Recording formats:

- DVD-R: DVD-Video format (Video mode)
- DVD-RW: Video Recording (VR) format and DVD-Video format (Video mode)

CD-R/RW compatibility

This recorder cannot record CD-R or CD-RW discs.

- Compatible formats: CD-Audio, Video CD, ISO 9660 CD-ROM* containing MP3, WMA or JPEG files
  * *ISO 9660 Level 1 or 2 compliant. CD physical format: Mode1, Mode2 XA Form1. Romeo and Joliet file systems are both compatible with this recorder.*
- Multi-session playback: Yes (except CD-Audio and Video CD)
- Unfinalized disc playback: CD-Audio only

Compressed audio compatibility

- Compatible media: CD-ROM, CD-R, CD-RW
- Compatible formats: MPEG-1 Audio Layer 3 (MP3), Windows Media Audio (WMA)
- Sampling rates: 44.1 or 48kHz
- Bit-rates: Any (128Kbps or higher recommended)
- VBR (variable bit rate) MP3 playback: Yes
- VBR WMA playback: No
- WMA encoder compatibility: Windows Media Codec 8 *(files encoded using Windows Media Codec 9 may be playable but some parts of the specification are not supported; specifically, Pro, Lossless, Voice and VBR)*
- DRM (Digital Rights Management) file playback: No (see also DRM in the *Glossary* on page 97)
- File extensions: .mp3, .wma (these must be used for the recorder to recognize MP3 and WMA files – do not use for other file types)
- File structure: Up to 99 folders / 999 files (if these limits are exceeded, only files and folders up to these limits are playable)

WMA (Windows Media Audio) compatibility

The Windows Media® logo printed on the box indicates that this recorder can playback Windows Media Audio content.

WMA is an acronym for Windows Media Audio and refers to an audio compression technology developed by Microsoft Corporation. WMA content can be encoded by using Windows Media® Player version 7, 7.1, Windows Media® Player for Windows® XP, or Windows Media® Player 9 Series.

Microsoft, Windows Media, and the Windows logo are trademarks, or registered trademarks of Microsoft Corporation in the United States and/or other countries.

JPEG file compatibility

- Compatible formats: Baseline JPEG and EXIF 2.2* still image files
  * *File format used by digital still cameras*
- Sampling ratio: 4:4:4, 4:4:2, 4:2:0
- Horizontal resolution: 160 – 5120 pixels
- Vertical resolution: 120 – 3840 pixels
- Progressive JPEG compatible: No
- File extensions: .jpg, jpeg, jif, jfif (must be used for the recorder to recognize JPEG files – do not use for other file types)
- File structure: The recorder can load up to 99 folders / 999 files at one time *(if there are more files/folders that this on the disc then more can be reloaded)*

PC-created disc compatibility

Discs recorded using a personal computer may not be playable in this unit due to the setting of the application software used to create the disc. In these particular instances, check with the software publisher for more detailed information.

Discs recorded in packet write mode (UDF format) are not compatible with this recorder.

Check the DVD-R/RW or CD-R/RW software disc boxes for additional compatibility information.

7.5 CLEANING

Before shipping out the product, be sure to clean the following positions by using the prescribed cleaning tools:

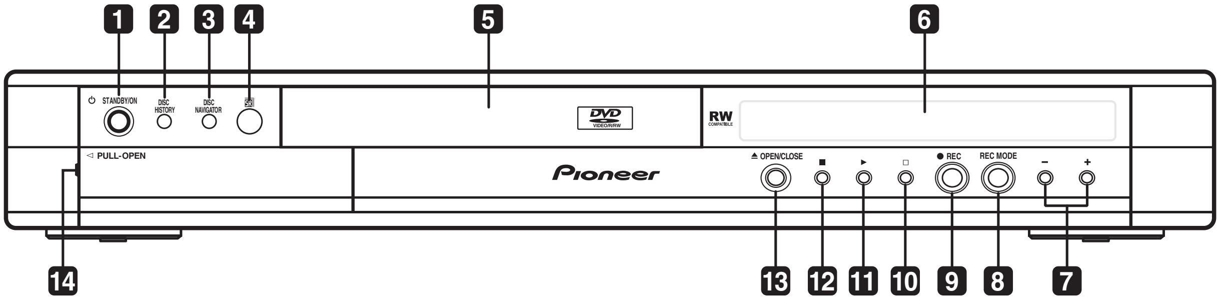
Position to be cleaned	Cleaning tools
Pickup lenses	Cleaning liquid : GEM1004 Cleaning paper : GED-008

Position to be cleaned	Cleaning tools
Fans	Cleaning paper : GED-008

8. PANEL FACILITIES

8.1 FRONT SECTION

Front panel


1
2
3
4
5
6
STANDBY/ON
DISC HISTORY
DISC NAVIGATOR
DVD VIDEO/RW
RW COMPATIBLE
PULL-OPEN
Pioneer
OPEN/CLOSE
REC
REC MODE
–
+
14
13
12
11
10
9
8
7

1 ⏻ STANDBY/ON
Press to switch the recorder on/into standby.

2 DISC HISTORY
Press to display the Disc History screen.

3 DISC NAVIGATOR
Press to directly access the Disc Navigator screen.

4 IR remote sensor

5 Disc tray

6 Front panel display
See *Display* on page 21 for details.

7 +/–
Use to change TV channels, skip chapters/tracks, etc.

8 REC MODE
Press repeatedly to change the recording mode (picture quality).

9 ● REC
Press to start recording.

10 □
Press to stop recording.

11 ►
Press to start or restart playback.

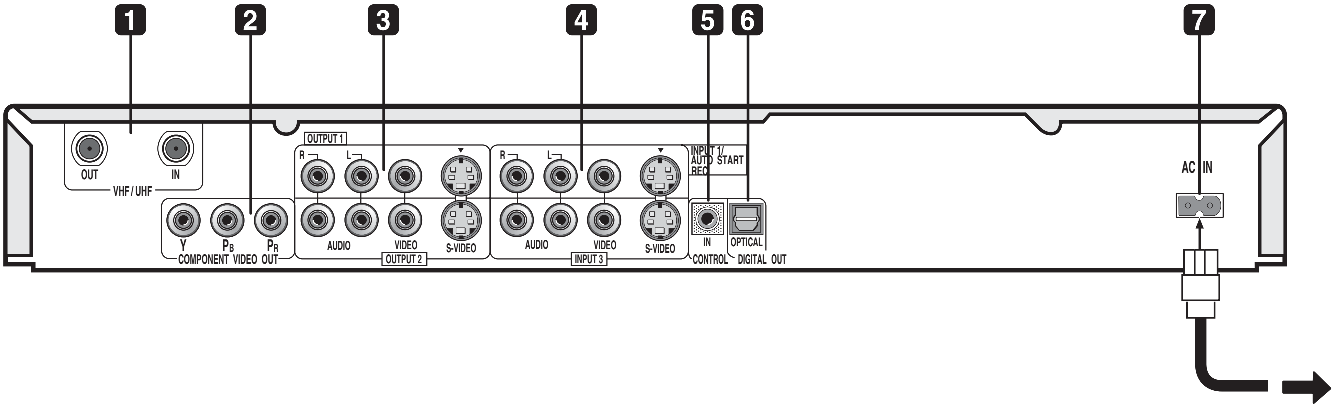
12 ■
Press to stop playback.

13 ⏏ OPEN/CLOSE
Press to open/close the disc tray.

14 Front panel inputs
Pull the cover down where indicated to access the front panel input jacks. Especially convenient for connecting camcorders and other portable equipment.

8.2 REAR PART

Rear panel connections


1
2
3
4
5
6
7
OUT
IN
VHF / UHF
OUTPUT 1
R
L
Y
PB
PR
COMPONENT VIDEO OUT
AUDIO
VIDEO
OUTPUT 2
S-VIDEO
AUDIO
VIDEO
INPUT 3
S-VIDEO
INPUT 1/
AUTO START
REC
IN
CONTROL
OPTICAL
DIGITAL OUT
AC IN

1 VHF/UHF IN/OUT
Connect your TV antenna to the **VHF/UHF IN** jack. The signal is passed through to the **VHF/UHF OUT** jack for connection to your TV.

2 COMPONENT VIDEO OUT
A high-quality video output for connecting to a TV or monitor with a component video input.

3 Audio/video outputs 1 and 2
Two sets of audio/video outputs (stereo analog audio; S-video and standard (composite) video jack) that you can use to connect TVs or monitors.

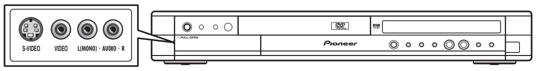
4 Audio/video inputs 1 and 3
Two sets of audio/video inputs (stereo analog audio; S-video and standard (composite) video jack) that you can use to connect to satellite receivers, TVs, VCR or other source component for recording.

5 CONTROL IN
Use to control this recorder from the remote sensor of another Pioneer component with a **CONTROL OUT** terminal and bearing the Pioneer SR mark. Connect the **CONTROL OUT** of the other component to the **CONTROL IN** of this recorder using a mini-plug cord.

6 OPTICAL DIGITAL OUT
A digital audio output for connecting to an AV receiver, Dolby Digital/DTS decoder or other equipment with optical digital input.

7 AC IN
Connect to a power outlet using the supplied power cable

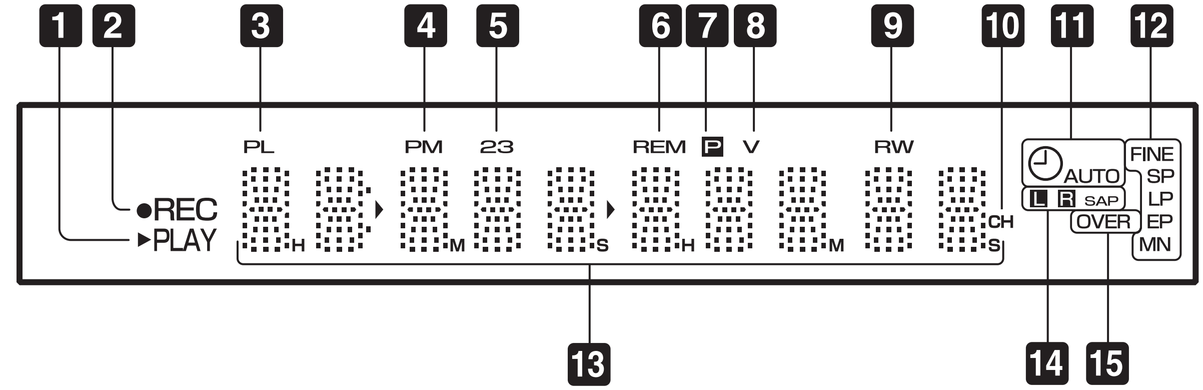
Front panel connections


S-VIDEO
VIDEO
L(MONO) - AUDIO - R
Pioneer

On the left side of the front panel a flip-down cover hides a second audio/video input, consisting of an S-video and standard (composite) video jack, and stereo analog audio jacks.

8.3 DISPLAY

Display



1 ► PLAY
Lights during playback; blinks when paused.

2 ● REC
Lights during recording; blinks when recording is paused.

3 PL
Lights when a VR mode disc is loaded and the recorder is in Play List mode.

4 PM
Lights to indicate PM (after midday) for the clock display.

5 2 3
Shows the remote control mode (if nothing is displayed, the remote control mode is 1).

6 REM
Lights when the character display is showing the remaining available recording time.

7 P
Lights when the component video output is set to progressive scan.

8 V
Lights when an unfinalized Video mode disc is loaded.

9 R / RW
Indicates the type of recordable DVD loaded: DVD-R or DVD-RW.

10 CH
Channel indicator for the built-in TV tuner.

11 ⏲
Lights when a timer recording has been set. (Indicator blinks if the timer has been set but there isn't a recordable disc loaded.)

AUTO
Lights when Auto Start Recording has been set, and during Auto Start Recording.

12 Recording quality indicators

FINE
Lights when the recording mode is set to **FINE** (best quality).

SP
Lights when the recording mode is set to **SP** (standard play).

LP
Lights when the recording mode is set to **LP** (long play).

EP
Lights when the recording mode is set to **EP** (extended play).

MN
Lights when the recording mode is set to **MN** (manual recording level) mode.

13 Character display

14 Channel recording indicators

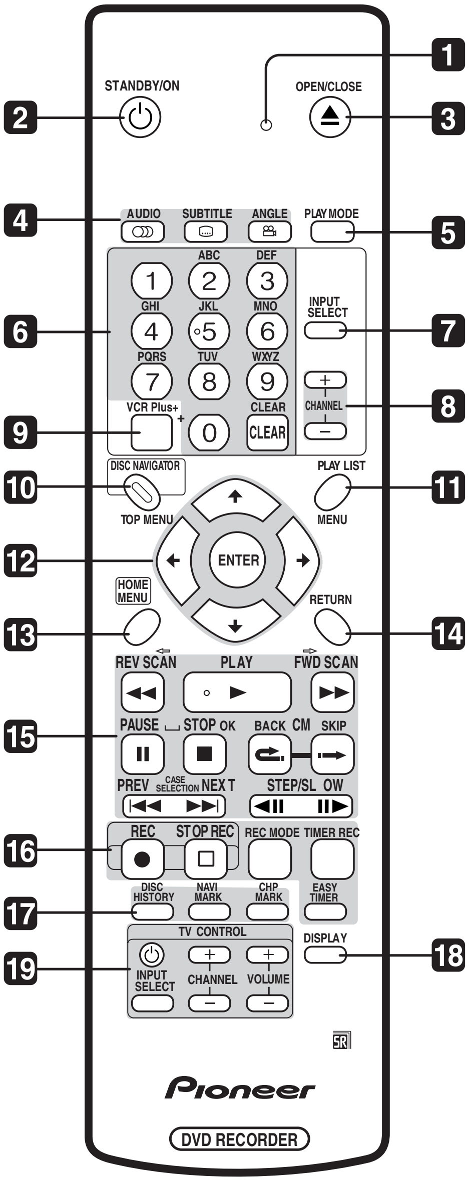
L R
Indicates which channels are recorded when Dual Mono is selected.

SAP
Lights when the currently selected TV channel has a Second Audio Program channel.

15 OVER
Lights when the analog audio input level is too high.

8.4 REMOTE CONTROL

Remote control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17
18
19
STANDBY/ON
OPEN/CLOSE
AUDIO
SUBTITLE
ANGLE
PLAY MODE
ABC
DEF
GHI
JKL
MNO
PQRS
TUV
WXYZ
INPUT SELECT
CHANNEL
VCR Plus+
CLEAR
DISC NAVIGATOR
TOP MENU
PLAY LIST
MENU
ENTER
HOME MENU
RETURN
REV SCAN
PLAY
FWD SCAN
PAUSE
STOP OK
BACK CM SKIP
PREV
CASE SELECTION
NEXT
STEP/SLOW
REC
STOP REC
REC MODE
TIMER REC
DISC HISTORY
NAVI MARK
CHP MARK
EASY TIMER
TV CONTROL
DISPLAY
INPUT SELECT
CHANNEL
VOLUME
Pioneer
DVD RECORDER

1 Remote control indicator
Lights when setting up the remote control for use with a TV and when setting the remote control mode

2 ⏻ STANDBY/ON
Press to switch the recorder on/into standby.

3 ⏏ OPEN/CLOSE
Press to open/close the disc tray.

4 DVD playback functions

AUDIO
Changes the audio language or channel. (When the recorder is stopped, press to change the tuner audio.)

SUBTITLE
Displays/changes the subtitles included in multilingual DVD-Video discs.

ANGLE
Switches camera angles on discs with multi-angle scenes.

5 PLAY MODE
Press to display the Play Mode menu (for features such as search, repeat and program play).

6 Alphanumeric buttons and CLEAR
Use the number buttons for track/chapter/title selection; channel selection, and so on. The same buttons can also be used to enter names for titles, discs and so on.

Use **CLEAR** to clear an entry and start again.

7 INPUT SELECT
Press to change the input to use for recording.

8 CHANNEL +/–
Press to change the channel of the built-in TV tuner.

9 VCR Plus+
Press, then use the number buttons to enter a PlusCode® programming number for timer recording.

10 DISC NAVIGATOR / TOP MENU

Press to display the Disc Navigator screen, or the top menu if a DVD-Video disc is loaded.

11 PLAY LIST / MENU
Press to switch between Original and Play List content on VR mode discs, or display the disc menu if a DVD-Video disc is loaded.

12 ⬆/⬇/⬅/➡ (cursor buttons)and ENTER
Used to navigate all on-screen displays. Press **ENTER** to select the currently highlighted option.

13 HOME MENU
Press to display the Home Menu, from which you can navigate all the functions of the recorder.

14 RETURN
Press to go back one level in the on-screen menu or display.

15 Playback controls

◀◀ REV SCAN / FWD SCAN ▶▶
Press to start reverse or forward scanning. Press again to change the speed.

▶ PLAY
Press to start playback.

❚❚ PAUSE
Press to pause playback or recording.

■ STOP
Press to stop playback.

CM BACK (commercial back)
Press repeatedly to skip progressively backward on the disc.

CM SKIP(commercial skip)
Press repeatedly to skip progressively forward on the disc.

⏮ PREV / NEXT ⏭
Press to skip to the previous or next title/chapter/track/folder; or to display the previous or next menu page.

◀II STEP/SLOW II▶
During playback, press to start slow-motion playback; while paused, press to show the previous or next video frame.

16 Recording controls

● REC
Press to start recording. Press repeatedly to set the recording time in blocks of 30 mins.

☐ STOP REC
Press to stop recording.

REC MODE
Press repeatedly to change the recording mode (picture quality).

TIMER REC
Press to set a timer recording from the standard Timer Recording screen.

EASY TIMER
Press to set a timer recording from the Easy Timer Recording screen.

17 DISC HISTORY
Press to display summary information (disc name, recording time left, etc.) from the last 30 recordable discs loaded.

NAVI MARK
Press to select a thumbnail picture for the current title for use in the Disc Navigator screen.

CHP MARK
Press to insert a chapter marker when playing/recording a VR mode DVD-RW disc.

18 DISPLAY
Displays/changes the on-screen information displays.

19 TV CONTROL
After setting up, use these controls to control your TV.

■ Jigs list

Name	Jig No.	Remarks
Service Remote Control Unit	GGF1381	adjustment, diagnosis
DVD Test Disc (DVD-Video)	GGV1025	Check of DVD-Video
DVD Recorder Data Disc	GGV1179 (*)	diagnosis (ID data setting)

(*) : GGV1134 is now released, however GGV1179 will be released in JUNE/2004.
Until GGV1179 is released, use GGV1134 data disc.